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THERAPEUTIC RESEARCH *

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Although we have not yet reached the Golden Age of therapeutic discoveries, there are many indications that we are approaching the threshold to it. Never before in the history of medicine has so much interest been taken either in the introduction into the treatment of disease of new drugs and other therapeutic measures or in the scientific study of the action of well known old time drugs and procedures. Moreover, drugs are more easily and better prepared and standardized, and the roentgen ray and other physiotherapeutic measures further developed than in the past. It has been of interest and value to me to attempt to outline the paths along which therapeutic research should proceed in the future, and I hope that it will also interest others.

There are three important paths for progress in therapeutic knowledge: first, the discovery of new drugs and other methods of treatment; second, the determination by modern scientific investigation of the value of drugs and methods used empirically in the past, and, third, of great significance and most neglected, the study of the reaction of the person to whom the treatment is applied.

The discovery of new drugs and vaccines, antitoxins and physiotherapeutic measures is developing with greater and greater activity. It is often spectacular. The reasons for the increasing progress along this path of therapeutic investigation are three, and they are all significant. In the first place, more and more workers are in the field, because of greater interest in it; secondly, these workers are better trained than ever before; and, thirdly, there are more material resources for the work than at any previous time in the history of medicine. There need be no wonder at the increasing number of investigators—the subject is a fascinating one and the contagious example of a few enthusiasts quickly spreads. The existence of many institutes, hospitals and endowments fostering the work is well known and needs no comment. It is perhaps a little less realized that the second reason for the progress along this path of therapeutic research—namely, the training of the investigator—is of importance at least equal to and probably greater than the other two. Less must scientific advance in the treatment of disease depend on accident than it did in the past. More must progress be developed by men trained in the fundamental sciences—mathematics, physics and chemistry—as well as in the biologic sciences—bacteriology, physiology, pathology and pharmacology. Of course, to be ideal therapeutic investigators such persons must also have good clinical teaching and experience. This equipment is more demanded in the future. It was rare in the past and that is why this path has been so little trodden, with rather unusual exceptions. We can still expect chance discoveries to come and even more than in the past with more people at work now. But the results of sounder fundamental training are beginning to appear, and at least in part have produced such recent discoveries as arsphenamin, scarlet fever antitoxin, radiotherapy, insulin, and cervical sympathectomy for angina pectoris. If a person in the future wants to enter this particular path of therapeutic research with reasonable promise of success, he must be more than an intelligent inquisitive physician; he should also have a good working knowledge of bacteriology and physiology, chemistry, physics and mathematics—if not all of these, at least a goodly proportion.

For most of us who have not had an extensive or intensive training in the fundamental sciences, it is still possible to carry on therapeutic research. We may ourselves apply in the clinic drugs and measures not only newly discovered, but also long known; by careful observations we may determine to what degree and how these remedies are clinically effective. This path too, though well known, has been but little used. Here general practitioners sometimes have more opportunity than laboratory and hospital workers, and they should not neglect their chance by minimizing these opportunities and the value of their observations. There are many drugs being used empirically that have never been scientifically studied; they often seem helpful, but we are not yet sure in just what conditions or why. Other drugs once used and now almost obsolete may still have some virtue yet unknown, perhaps in some condition other than that for which they were originally given and then discarded. At one time, about a hundred years ago, digitalis was given to nearly all tuberculous patients to prevent hemorrhage and tubercle formation and then, because of its inertness, was given up; and only later, less than fifty years ago, was it rediscovered that Withering was right when he said, a hundred and fifty years ago, that it had at times a powerful effect on the heart and removed dropsy.

I shall briefly mention a few other drugs that have passed through the stages of accidental discovery, then sometimes temporary oblivion, then rediscovery and general empiric use, then unpopularity perhaps because they were considered old-fogey, and finally established by scientific proof as therapeutic remedies of value. Cod liver oil has had several crests of popularity, and yet work on it continues, to determine why it has such value. Jacob Bigelow, in a course of lec-

* Chairman's address, read before the Section on Pharmacology and Therapeutics at the Seventy-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., May, 1925.

tures at the Harvard Medical School seventy-five years ago, spoke as follows:

> At this age, the stock of pharmacy has become extensive. Its components are of various antiquity: of them, some like hellebore and hemlock were known to the ancients. Others, calomel, for instance, we have from the alchemists of later times. Some date their discovery to that of this hemisphere; of these, jalap, ipecac, Peruvian bark and tobacco form similar examples, while others, like croton oil, date their use since the commencement of the present century. But these are not all. There is one class, and not a small one, still to be mentioned—the medicines which were once familiarly known, then forgotten and revived again. Of such are cod liver oil, now in such repute—spoken of in old books under the name of "Ol. Jecun. Aselli"—and now first of late recommended by Dr. Williams of London, and again colchicum, known to the ancients, and then plunged into oblivion until the discovery of its specific influence in gout.

Pierre Pomet, in his fascinating "Histoire generale des drogues," in 1694, wrote of the empiric use of several drugs which in later days were proved to be valuable by scientific tests. For example, iron and sulphur were heated together, and the resulting compound, called saffran de Mars, was given as a tonic. It was discovered that this tonic cured the pale color of girls, and in our generation it has been discovered that chlorosis is rare, probably because of the iron present in nearly all the spring tonics sold as prepared medicines or on physicians' prescriptions. Pomet recommended calomel as a very excellent remedy to cure secret maladies (undoubtedly syphilis) and pediculosis, and also as a purgative. Since his day calomel has also been found to be a powerful diuretic, especially in obstinate edema. Many of our own time have forgotten this, and we find enthusiasm in the use of the new mercury preparation novasurol, with little appreciation of the diuretic properties of the old mercury salt calomel.

Another drug discussed by Pomet, in 1694, was ipecacuanha, the root of which was used for the cure of dysentery. It was introduced from Brazil into Europe about 1675—250 years ago. As long ago as 1850 its alkaloid emetin was known, but only recently has its specific effect in amebic dysentery been proved.

Cinchona bark, accidentally found by the Peruvians to stop certain fevers, was introduced by the Spaniards into Europe in the sixteenth century. The cure by it of the fever in the case of the Countess of Cinchon gave it its name. Years afterward, quinin and other alkaloids were isolated and found to be specific in malaria. During the past century quinin was given with digitalis in some cases of heart disease in Europe. It was thought that it exerted some beneficial effect. Then physicians, seeing no reason why quinin should be useful in the treatment of heart trouble, advocated its abandonment. But now we know that these cinchona alkaloids, especially quinidin, do have a beneficial specific effect on the heart to prevent or to stop in selected cases the distressing arrhythmia called auricular fibrillation. It is possible that the frequent use of quinin in hyperthyroidism in the past may have had the same effect, but its employment was wholly empiric.

It is not necessary to speak of other examples of the accidental, the empiric and the scientific use of drugs in the history of therapeutics. Enough has been said to illustrate the interesting developments of the past and to stimulate further investigation in the future. One example may be cited with regard to physiotherapy. For many hundreds of years, the spa or bath treatment of disease, especially of chronic ailments, has been popular. The claims of the proprietors of these baths and resorts have often been ridiculously extravagant, and yet there is no question about their success in many cases. Why has there been this success? Mackenzie and others have sometimes ridiculed the idea that the waters—sulphur, alkaline and others—had very special virtue either by internal or by external use. They were probably right; but there was some reason for the improvement in many cases treated at these places. That reason, not widely advertised, is not difficult to discover. A regulation of habits of life, with relief from mental and physical strain in new and pleasant surroundings under careful medical supervision, is the obvious answer to this question. Whenever any physiotherapeutic measure, such as the treatment at baths and massage, is successful for centuries there must be some reason for that success, and it does not help to shrug our shoulders and denounce the method without trying to discover why it has helped.

Finally, we come to the third path for therapeutic research. Of that we know so little that a few words will suffice to mention its existence and importance. In the study of symptoms and diagnosis, every medical graduate when he begins to practice medicine discovers quickly enough that there has been a great gap in his medical training and that gap he must gradually fill by slow and long experience himself. That gap consists of the study of the reaction of different individual types of man to pathologic processes and stimuli. Animal pathology here is of little avail except roughly to point the way. Accuracy beyond the crude beginnings of the subject taught and learned in the animal experimental laboratory and the necropsy room must come from dealing with all types of man afflicted with all kinds and degrees of disease. No two persons react in exactly the same way in symptoms, functional capacity or duration of life, to the same disease of the same severity. In a study of heart pain, particularly, was this brought forcibly to my attention.

In the study of symptoms and their importance in diagnosis we have merely scratched the surface. And the same element enters into the treatment of disease. Here lies a tremendously important unexplored path, which is known to the practitioners of medicine particularly but is little studied. We talk, for example, about idiosyncrasy to drugs (as to morphin or quinin), or other therapeutic measures in health and in disease; but that means little except that we do in a vague way recognize that there is such a problem. Of equal importance in therapy, then, with the pathologic condition to be treated and the drug to be used, whether specific or not, is the individual; the average dose, pharmacologic action in animals and the usual course in man are all helpful guide posts, but they are very crude ones. We must establish in the future more accurate directions than we have at present when we have to treat a particular person with a certain family history, a certain past history, and present constitutional peculiarities. Research is badly needed here, and it must perforce be chiefly on man and in the practice of medicine.

Importance of Clinical Data in Diagnosis.—While special aids to diagnosis may play an important rôle in some cases in making or clinching a diagnosis, they can only supplement, but never replace, the clinical data obtained from an accurate history and a careful physical examination. The latter must ever remain our surest guides to diagnosis, and on them we will mainly rely for the correct interpretation of any given case.—D. P. D. Wilkie: *Brit. M. J.* **2**:163 (Aug. 2) 1924.

THE HABIT OF ATTENDING MEDICAL MEETINGS *

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People in all walks of life and all kinds of occupations gather periodically for the purpose of discussing problems common to the members of these groups, to gain experience and knowledge from the experience of others and thus to improve the affairs of each participant. In a profession such as ours, whose principal and primary object is to help and benefit our fellow men, this gain in knowledge is almost incumbent on us, because it is so essential for the good of those entrusted to our care. He who attends meetings regularly, even if he does not impart his experience to others, must leave a better man, better by the knowledge he has absorbed while listening to others. How much more valuable to the community is he who imparts his knowledge and thoughts at the meeting in a discussion or in a paper. He gives to others his thoughts and his knowledge, but he becomes richer himself because of the intensity of thinking and because of the preparations that are necessary prerequisites of a paper or even of remarks in discussion.

Presence at a meeting, hearing discussions and papers not only is of value to the beginner, but has been considered of importance to our masters. Naturally, not all that is transacted in every meeting is of the kind that signifies progress and betterment; some things presented may be of the kind that should be avoided and deprecated. But there is good also in listening to this kind because it teaches how to avoid the mistakes of others. But, somebody would say, I can read all that transpires at a meeting in the transactions. This is true, and having the printed transaction has the advantage that they can be consulted and studied with absolute surety at any moment desired. True as all this is, nobody can deny that most of us are more deeply impressed by seeing or hearing a thing presented by the author than by the mere reading of it; the impression is more vivid and lasting, and the time spent in listening at a meeting is thus more profitably spent than it would be by reading the same subject matter.

Presence at meetings produces, I am sure, in different members of the audience, as it has in me, various emotions. These emotions must apparently fall into one or more of the following subdivisions: admiration for the subject or the speaker; feeling of one's own inferiority in having done so little; the desire to imitate that piece of work and that method; the determination not to overlook this or that in the future, and regrets at having failed to observe this and that.

Wishes, regrets, determinations like these are bound to have only the most beneficial effects on our future activities, because they are stimulating to better performance of duty.

When we stay at home and work in our own circle only, good work might be done and creditable, but our accomplishments, our thoughts, our ideals, are slow to reach the outside world. The good we may have done has had only little influence, and, for the same reason, recognition by our fellow workers is sure to come only very slowly. At meetings, when we allow others to peep into our minds, a quicker estimate and appreciation of our value is gained, the influence for good spreads quicker and wider. Our leaders, the men who have honored and exalted our profession, all of them were regular in their attendance at meetings, spreading the knowledge they possessed and learning from the humblest and youngest in the meeting.

Attendance at meetings has often led to ties of the most fruitful and warmest friendships among medical men the world over. History of medicine, and of our branch especially, contains many records of the wonderful effects of exchange of thoughts among friendly spirits, just as these medical meetings.

Attendance at meetings must not be limited to those of our immediate circles. The larger the group of individuals banded together, the greater is the probability of valuable and stimulating contributions at that meeting.

Medical Building.

* Chairman's address, read before the Section on Ophthalmology at the Seventy-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., May, 1925.

RAYNAUD'S DISEASE COMPLICATED WITH GASTRIC ULCER

REPORT OF CASE *

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It has been frequently pointed out that in the study of the etiology of peptic ulcer one cannot be content with viewing this affection simply as a local disease limited to the stomach and duodenum, but that some systemic disturbance may be largely accountable for the chronicity of the local manifestation. Whatever the remote cause may be, whether due to infection, disturbances of the nervous or endocrine system, anemia, syphilis or other systemic conditions, the ultimate result consists in a localized destruction of the mucous membrane varying in degree according to its chronicity, surrounded by undermined edges with proliferation of connective tissue, thickened walls, and a base consisting largely of a thin layer of muscularis or somewhat thickened serosa. It has also been demontrated by Smithies, and more recently by Crohn, that chronicity bears but little relation to the time element in the formation of ulcer and that chronic ulcers may form in even as comparatively a short period as two or three weeks.

In the local disturbance entering into the production of ulcer, the vascular supply in the stomach below the mucous membrane plays a most important rôle; for while the ulcers of the young are to a great extent due to infection and trauma, those of the old are caused by arteriosclerosis and vascular degeneration.

Konjetzny [1] has recently pointed out that, as a result of the vascular changes, gastritis or duodenitis is produced. The gastritis is most pronounced at the antrum in the region of the pyloric glands and the adjacent fundus. Following this process, small and large funnel shaped mucosal defects are noted. The fact that smaller and larger mucosal defects and typical ulcers are situated side by side in the stomach and duodenum, in these cases, indicates that they are different stages of the same process.

* From the Gastro-Enterological Clinic of the Department of Medicine of the University of Maryland.

1. Konjetzny, G. E.: The Etiology and Surgery of Ulcer of the Stomach or of the Duodenum, Arch. f. klin. Chir. **133**: 559 (Nov. 24) 1924.

In a recent publication, Aschoff [2] concludes that erosions of the stomach, from which chronic ulcers frequently take their origin, are usually produced by circulatory disturbances. These may be directly or indirectly produced through spastic contractions of the musculature of the stomach. In certain areas (fundus), venous stasis and the spasmodic contractions play a most important rôle, while in others (gastric pathway), spastic contractions together with arterial blockings (embolic or arteriosclerotic) are largely concerned in the production of the necrotic areas in the mucosa.

In connection with the vascular changes that take place in the stomach in ulcer, it is interesting to note that in Raynaud's disease, in which vascular alteration likewise occurs especially in the extremities as well as in the internal organs, a disturbance of the local circulation with interference of the function of the extremities takes place with loss of vitality followed by necrosis. The pathogenesis of this disease is attributed by the majority of authorities to a vasomotor spasm, though others attribute it to affections of either the central or the peripheral nervous system. Burger, however, is unwilling to accept the vascular origin of Raynaud's disease and attributes the trophic and vasomotor disturbance primarily to the irritative and exhaustive process, as of the sympathetic nervous system. As visceral disturbances of this affection, attention must be directed to the attacks of hemoglobinuria and abdominal colic occurring in this disease.

Results of a Fractional Test Meal

	Total Acidity	Free Hydrochloric Acid
15 minutes	21	11
30 minutes	39	25
45 minutes	55	30
1 hour	66	53
1 hour 15 minutes	68	55
1 hour 30 minutes	70	68
1 hour 45 minutes	70	62
2 hours	70	59
2 hours 30 minutes	45	40
3 hours	23	17

Whether any close relation exists between the ultimate vascular changes occurring in ulcer and in Raynaud's disease or not, the following instance of Raynaud's disease complicated with gastric ulcer is of especial interest.

REPORT OF CASE

History.—F. S., a man, aged 38, was first admitted to the wards of the University Hospital, Feb. 11, 1924, under the service of Dr. M. C. Pincoffs, with the complaint of a drawing sensation and pain in the feet, especially in the stump of two toes that had been amputated. The patient had had the usual diseases of children. At the age of 2 years he was affected with anterior poliomyelitis, followed by a partial paralysis of the right leg. He had not had scarlet fever, diphtheria, rheumatic fever or malaria. He enjoyed good health until 1918, when he had an attack of influenza extending over a period of two weeks. He had never suffered from any sore throat or sinus involvement. He had always been addicted to excessive smoking and coffee drinking. Alcohol had been taken moderately.

Present Illness.—The patient noted the onset of pains in his toes and fingers, beginning several years before, and especially in cold weather. This became more marked in the left side. He observed that his fingers would become quite white at the tips, would tingle and burn, and would become bluish, and finally again turn to normal. These attacks would continue for from fifteen minutes to an hour. He then developed a drawing, tingling sensation in the toes of his left foot, especially the great and small toes. The toes became gangrenous, and in June, 1923, were amputated. Following the operation, the stump of the great toe showed no tendency to heal, and an ulcer developed. During this period he developed a drawing, painful sensation in his left foot, more marked along the amputated stumps. At the time of his entrance into the hospital, it was observed that the fingers of his left hand would become quite white at the tips when exposed to cold, such as ice water, followed by a dusky cyanosis which would finally disappear and return again to normal. There was no evidence present of gangrene of the fingers. There was, however, a small unhealed ulcer on the amputated stump of the great toe of the left foot. The general physical examination at this time was essentially negative with the exception of the abnormalities already noted, including an atrophied right leg following an infantile paralysis.

Treatment and Course.—The diagnosis of Raynaud's disease was made, and a periarterial sympathectomy advised and performed about the left femoral artery. The patient was discharged from the hospital, April 24, 1924, improved. Following his discharge, the pain in the left leg had decreased markedly, but there still remained a drawing sensation which was constantly present. The left foot continued to perspire frequently and profusely. There were periods of feeling of heat in the leg, followed by chilliness. The middle and little finger of the left hand tingled at the tips and often became dead white in cold weather, followed later by cyanosis.

About two months previous to his second admission, the patient began to complain of digestive disturbances. Pain was noted in the epigastrium appearing about an hour following meals. His appetite remained good, the bowels normal. Following this period, attacks of vomiting occurred several hours after meals; and from this time on there was almost constant indigestion in the form of pain and discomfort, occurring several hours following meals, acid eructations, fulness and distention in the abdomen. There was a history neither of hematemesis nor of melena.

Second Admission.—The physical examination when the patient entered the hospital, Nov. 4, 1924, was essentially negative, except for a moderate pyorrhea and the presence of the stumps of the amputated toes already noted. The ulcerated area on the amputated stump of the great toe had healed. The dorsalis pedis pulsation was slight on both feet. There was no evidence of peripheral arteriosclerosis. The blood pressure was 150 systolic, and 90 diastolic in both arms. There was present an atrophy of the right leg. The second toe of the left foot was cold and presented a purplish hue, and there was present a callous deposit at the tip of the toe. The entire extremity was cold and moist.

The abdomen was soft and relaxed; the liver and spleen were not palpable; there were no masses or enlargements present. A tender epigastric area was constantly observed; no tenderness was noted elsewhere.

Laboratory Findings.—Numerous specimens of the urine were examined and always found normal. An examination of the blood revealed: red blood cells, 4,900,000; white blood cells, 7,500; hemoglobin, 80 per cent.; differential count, normal. The results of a Wassermann test were negative. The blood chemistry was normal. The spinal fluid presented a negative Wassermann reaction and was otherwise normal. The stool was normal in consistency and color, and contained no parasites or mucus. Repeated examinations on a meat-free diet revealed the constant presence of occult blood.

A fractional test meal presented a persistent hyperchlorhydria. The gastro-intestinal roentgen-ray examination revealed a persistent defect at the pylorus which was partially obstructed. There was also present a marked spasticity of the pylorus, hour glass formation of the stomach, and six hour retention.

The diagnosis of pyloric ulcer with partial obstruction was made.

CONCLUSIONS

This case presents a typical instance of Raynaud's disease complicated with gastric ulcer. While it is most difficult to demonstrate a definite relationship existing

2. Aschoff, Ludwig: Lectures on Pathology, New York, Paul B. Hoeber, 1924.

between the two affections as occurring in the same patient, it is extremely interesting to note, and it is quite possible to conceive, that both may have originated in a vascular spasm. That similar spastic manifestations of the blood vessels occur in the internal organs in Raynaud's disease is revealed in the well observed attacks of hemoglobinuria and of abdominal colic noted at times in this affection.

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SURGICAL DRAINAGE IN INFECTION OF THE LIVER, BILE DUCTS AND GALLBLADDER *

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The pathology of the gallbladder has claimed a large interest in the life of the clinical surgeon. For obvious reasons, critical and terminal symptoms were those which made the earliest and most demanding claim. These urgent conditions were those associated with gallstones and their infective complexes—septic cholecystitis, cholangeitis, necrotic edema and perforation.

As the pathology of the vermiform appendix was studied and more or less effectively dealt with, a singularly misleading analogy crept into the clinical discussion of the relative infective conditions found in the gallbladder and appendix. This seriously retarded the correct interpretation of the pathology of the gallbladder and its associated structures.

It focused attention on a viscus whose source of infection, we were later to learn, might be quite remote from it. Through this error endless controversies have arisen, giving an exaggerated importance to an incidental and secondary infection, and overlooking the major and more important pathologic entity in the picture.

There have been many casual observations noted in the early literature of important changes in the liver, associated with infection of the gallbladder and bile ducts. These have been of rather more than historical value, disclosing, as they do, the keen analytic thought of the master minds who made them. We have room here for the mention of but a few of them.

As early as 1888, Riedel described a thick edged, tonguelike process of the liver which was a true chronic hepatitis and which from that time on was described as Riedel's lobe. Charcot, in 1892, noted enlargement of the liver in cases of gallstones. Langenbach believed that this enlargement was due to obstruction of the common duct, while Fink expressed his belief that in every case of infection of the bile tract the liver would be found enlarged.

Mayo-Robson, who was first to describe chronic pancreatitis due to obstruction of the choledochus below the emergence of the pancreatic ducts, found the liver greatly enlarged in infective cholangeitis, and believed that this might be complicated with cholecystitis and general hepatitis.

More than twenty years ago, Cushing conducted a series of experiments to discover the course through which infection was transmitted to the gallbladder in typhoid fever. Since then, many experimental studies have been made to determine whether this infection might not be from clumps of bacteria swept through the blood current from distant foci of infection to the wall of the gallbladder and the parenchyma of the liver.

Koch and Chiarolanza, after a long series of experiments, reached the conclusion that the course of this infection was hematogenous.

Letienne, Chiari, Girodi and Pawlowsky, though differing in their methods of study, arrived at a substantially similar agreement, that the entrance of bacteria into the bile tract was embolic.

Rosenow, in 1916, after a series of experimental studies in the production of cholecystitis and gallstones, concluded that the wall of the gallbladder was infected hematogenously.

None of these studies, however, offered any suggestion as to what part the liver shared in the infection of the bile tract.

It remained for Evarts A. Graham to conceive and systematically work out a series of experimental studies on the lower animals and clinical surgical operations on the pathologic human subject, to determine the source of bile tract, gallbladder and pancreatic infections. His first notable contribution was before the Chicago Surgical Society in December, 1917, when he reported a series of experimental studies on "Hepatitis: a Constant Accompaniment of Cholecystitis."

This proved to be the inauguration of a systematic study, later to be joined in by Peterman and Priest, of "The Association of Hepatitis with Experimental Cholecystitis and Its Bearing on the Pathogenesis of Cholecystitis in the Human."

Peterman made a later contribution on experimental studies on "Cholecystitis and Its Complications."

I have not time or space to quote extendedly from these studies, but they are so recent and outstanding in conclusive evidence that they may be set down as an authoritative guide for the surgeon in determining what procedure he shall adopt in this complicated field.

Graham found in thirty cases of biliary tract disease a distinct enlargement of the liver in twenty-six, or 87 per cent. In acute and subacute cholecystitis, he found microscopic evidence of inflammation in the liver. There was infiltration of leukocytes in the interlobular or periportal sheaths, and, in severe types, extension to the parenchyma of the lobules, with edema, necrosis and fat infiltration. Cultures from liver tissue and bile in the gallbladder showed the same organism in the two.

In chronic cholecystitis, the liver resembled early cirrhosis. The inflammatory reaction was chiefly pericholangeitis. He believed that the gross enlargement of the liver was due usually to edema, and that the size returned to practically normal after appropriate surgery.

In obscure or doubtful cases of bile tract disease, the presence of an enlarged liver is most significant.

Inspired by the study by Sudler of the lymphatic distribution of the gallbladder, Peterman showed that not only is the infection of the gallbladder hematogenous through the portal system in which the liver coincidently shares, but also that this infection may occur through the lymph vessels, and that there is a lymphogenous as well as a hematogenous origin of cholecystitis. As a prelude to his own experimental studies, he cites a voluminous bibliography covering more than thirty years of clinical and experimental observation on the infection of the gallbladder, bile ducts and liver. His conclusion is that "cholecystitis probably begins in most instances as an infection within the wall of the gallbladder and doubtless is secondary to hepatitis. This

* Read before the Section on Surgery, General and Abdominal, at the Seventy-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., May, 1925.

infection may be acquired from the appendix, or intestines (typhoid, dysentery), or it may be secondary to any other infectious focus within the body. The infection may then spread easily by the lymph stream to the wall of the gallbladder, and the complications then follow."

The final conclusion of this group of clinical surgeons is that "the emphasis so commonly placed on the appearance and changes in the mucosa of the gallbladder would seem to be misdirected."

What appraisement of these investigations are we willing, as clinical surgeons, to concede? Is it not a fact that much of our work on the gallbladder and bile tract has been founded on a very casual and superficial knowledge of the pathologic condition there? If not, why is it that cholecystectomies so often result in disappointment to our patients and ourselves? For a long time, there has been a conviction in the minds of many surgeons and internists that the results obtained from the surgery commonly done on the bile tract scarcely justify the hazard, pain and expense. Of course, I am not referring here to the acutely septic or obstructive types, which are emergent and must be radically dealt with.

If these experiments and clinical studies mean anything to us, then we should conform our surgery to meet their demands.

Does a cholecystectomy without drainage meet these requirements, in a liver and bile tract turgid and edematous from a prolonged low grade infection? When the edge of the liver is thick and rounded, and the parenchyma rigid and inflexible from edema; when the gallbladder has a thick wall, is contracted in size, and of a grayish yellow, opaque color, whether gallstones are present or not, the gallbladder should be removed, and the bile tract and liver drained. Cholagogues should be administered to facilitate this drainage, and the tube should be retained long enough for the bile to become comparatively free from bacteria.

Two years ago in the surgical section of the California State Medical Association, I suggested a simple and practical technic for establishing this drainage. It was also discussed informally on the following day in this section at the San Francisco session. The method has proved so satisfactory in chronic infective hepatitis and cholecystitis that I have adopted it as a routine technic. In all cases, before proceeding with the work on the gallbladder, the appendix is removed, any adhesions about the terminal ileum and hepatic flexure of the colon are removed, and the raw surface is turned in.

The gallbladder is dissected free from the liver as in an ordinary cholecystectomy, but, instead of tying off the the cystic duct, I clamp and cut away the gallbladder 3 cm. from the choledochus. The cystic artery is located and tied separately.

The funnel and the cystic and common ducts are explored for any stones that may be there. If the mucosa strips easily, a half inch cuff is removed from the top of the funnel. A small, firm-walled rubber tube is now tied in place with two forty-day chromic catgut ligatures, with the end of the tube a centimeter proximal to the common duct. The rough edge of the gallbladder stump may be either turned in or covered with omentum. The denuded bed from which the gallbladder has been dissected is covered in by flaps in the usual way. The drainage is maintained for from twenty-five to thirty-five days, as repeated cultures may indicate. Care must be exercised to prevent dehydration from excessive drainage. As a precaution the tube is clamped at intervals, chiefly at night, if the drainage exceeds 8 or 10 ounces in twenty-four hours. As a further precaution against dehydration, an abundance of water is given by mouth and by hypodermocylsis.

This operation may be done rapidly and without danger of injury to the common duct. It is free from the objections that attend Kehr's drainage of the common hepatic duct, as there is no tube in the common duct to produce pressure-ulceration and subsequent stricture, a surgical tragedy always imminent after tubal drainage of this duct. It disposes of the tiresome controversy on cholecystostomy and cholecystectomy. It is a cholecystectomy, and accomplishes all and more than the usual cholecstostomy does in the drainage of the common and hepatic ducts. No infected gallbladder is left behind for future complications.

Best of all, it drains and reduces the infection in the liver and pancreas, the raison d'être of practically 90 per cent. of gallbladder surgery.

I recommend this operation to the consideration of surgeons in the belief that it is founded on sound principles and is applicable to all conditions save cysticus, necrotic edema and gangrene, and because I cannot escape the conviction that our hope of success in the future treatment of infection of the liver, pancreas and bile tract will lie in the rational application of drainage.

Merritt Building.

ALTERATIONS OF BILE PIGMENT METABOLISM IN BILIARY TRACT DISEASE *

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The surgeon is frequently called on to perform operations on the extrahepatic bile passages without adequate knowledge of the extent of the hepatic lesion. Too often emphasis is placed on the disease of the gallbladder or common duct only, without estimating the associated hepatic damage. It has seemed to us that the extent of hepatic damage in all surgical lesions of the biliary apparatus should be determined, previous to operation, in the hope that some light might be thrown on the operative prognosis and the end-result.

An accurate estimation of hepatic damage is complicated and complex because of the manifold functions of the liver. We have, therefore, confined ourselves in this study to an investigation of the pigment metabolism of the liver. We realize that this presents only one aspect of the subject, but we believe that if this function shows any alteration, in the absence of gross obstruction, it is probable that actual liver damage is present.

In cases of common duct obstruction, estimation of the blood bilirubin offers a means of gaging the grade of obstruction.

Sudler, in 1901, published a careful anatomic study of the lymphatics of the gallbladder and showed that these had a direct and intimate connection with those of the

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liver and, in 1904, one of us called attention to the possible connection of cholecystitis and hepatitis, because of the close lymphatic connection between the gallbladder and the liver. Graham and his associates began publishing in 1918 the results of the splendid series of investigations on the association of hepatitis and cholecystitis, and showed that it is possible for hepatitis to cause cholecystitis and vice versa.

When the infection of the bile passages is mild or of short duration, the actual hepatic damage that can be demonstrated by present known tests is negligible although microscopic examination of the sections of the liver may show definite lesions. The absence of functional derangement can readily be explained by the great reserve power of the liver. In long standing or hyperacute types of inflammation, definite functional derangement is to be expected and usually can be demonstrated.

Jaundice has long been recognized as a symptom of liver disease. This sign is readily discernible in cases presenting the grosser lesions of the biliary apparatus, such as common duct obstruction (from stone or tumor), or in very advanced disease of the liver itself. It is only within recent times that our attention has been directed to latent jaundice; that is, a preicteroid state with an increase of bile pigment in the blood. This condition of early "blood jaundice" is comparable to the finding of an increase of blood sugar before sugar appears in the urine.

In 1918, van den Bergh published his monograph concerned with the investigation of bile pigment in the blood, and he described a method for estimating bilirubin in the serum in a dilution as high as 1 mg. per liter, or 1 : 1,000,000. Basing the theory on the work of Kupffer, Aschoff and others on the function of the reticulo-endothelial system, van den Bergh and McNee have developed an interpretation of the two types of jaundice, obstructive and nonobstructive, which, while unproved experimentally, is in accord with our clinical observations.

Bilirubin may be formed outside the liver. The experiments proving this statement were not entirely conclusive until the work of Mann finally settled the matter. McNee follows Aschoff in believing that cells of the reticulo-endothelial system elaborate the bile pigment. These cells occur in the liver, spleen, blood vessels and in other parts of the body, the larger portion being found in the walls of the blood sinuses of the liver and known as Kupffer cells. But even though present in the liver, these cells should be regarded as extrahepatic and related to the entire system. The polygonal liver cells probably play no part in this synthesis. The bilirubin may simply pass through them, to be excreted in the bile, or it may be chemically altered during a secretory process.

McNee and van den Bergh have divided jaundice into three groups: 1. Bile pigment formed normally by the reticulo-endothelial system and passed on normally through the polygonal cells but obstructed in the ducts. The bilirubin found in the blood in this type has passed through the liver cells into the bile, and then because of the blockage has reentered the blood in association with the other constituents of the bile. The patient suffers from what has long been called cholemia. 2. Bile pigment formed normally but unable to pass, owing to damage to the polygonal cells, as from toxemia or infection. It is really a hyperbilirubinemia. 3. Hyperbilirubinemia due to excessive blood destruction and the formation of bilirubin in such excessive amounts that the polygonal cells are not able to excrete or secrete it rapidly enough. This type is seen in the hemolytic ictero-anemias.

It is the second group, hyperbilirubinemia due to damage of the liver cells, with which we are concerned in hepatitis. We have chosen the van den Bergh test to estimate the amount of bilirubin in the blood, because we believe it to be the most accurate method available at the present time. We think it is more accurate than the Meulengracht test.

The van den Bergh test is composed of two parts, one of which, the indirect, is a quantitative test, measuring the amount of bilirubin in a known amount of blood serum, and the other, the direct, a reaction differentiating between the bilirubin remaining in the blood serum and that which has reentered it from the bile. The indirect test is reported in units, one unit being equal to 5 mg. of bilirubin in 1 liter of blood. The normal bilirubin reading is from 0.2 to 0.6 unit, or from 1 to 3 mg. per liter.

The direct reaction depends on the time of development of the maximum color, and is reported as immediate, which indicates obstruction, or delayed or negative, which indicates the presence of the hemolytic type of bilirubin. In the absence of increased hemolysis, the delayed or negative reaction indicates retardation of bilirubin excretion.

The bilirubin content of the blood was studied in twenty-eight cases which subsequently were brought to operation. In eighteen cases, a section of the liver was removed at the time of operation for microscopic study. In two cases, the section removed was close to the gallbladder, but in the other sixteen it was taken from a point distant from the gallbladder.

Of the twenty-eight cases, three revealed simple cholecystitis with a thickened gallbladder but no stones. In two of these the blood bilirubin was normal. The third case was one of long standing cardiac disease; the section of the liver did not show any inflammatory change. Parenthetically, it might be noted that in a group of twenty cases previously studied by one of us (E. G. R.) on the medical division, nine were thought to be chronic cholecystitis without stones and in all a normal blood bilirubin content was found, with the exception of one case, which gave a reading of 0.7 unit.

Twelve cases at operation presented multiple calculi. Nine of these cases showed a hyperbilirubinemia, while the others were high normal. The symptoms in this group had been present from many months to many years. Such cases usually indicate a chronic infective process, and we believed that this should be evident in the sections of liver removed at operation, and so it proved.

The results of the indirect van den Bergh reaction are also important. The cases fall into two groups: Those considerably above normal, that is, one unit or above, and those whose reading is from top normal to one. It is quite possible that in the first group there existed a primary hepatitis with a secondary cholecystitis, perhaps an initial portal infection of the liver; while in the second group, the primary infection may have occurred in the gallbladder, with secondary invasion of the liver through the lymphatics.

In three cases, single metabolic stones were found at operation. The van den Bergh readings before operation were normal in these cases. In only one case was a section of the liver removed, and this, on microscopic examination, showed none of the signs of inflammation.

This is apparently in accord with the present conception of the noninfectious nature of cholesterin stones.

The blood bilirubin was estimated in eleven cases of common duct obstruction. In seven of these the obstruction was due to a stone. In one it was due to pancreatitis, in one to carcinoma of the papilla of Vater, in one to extrahepatic carcinoma occluding the common duct, while in the last the obstruction was due to a stricture following injury to the common duct.

All of these cases showed a marked increase of bilirubin in the blood, and the direct reaction was that of obstructive jaundice. In several of the cases in which the examination was repeated at intervals after the operation, the bilirubin content declined, but did not return to within normal limits. The direct reaction changed from the immediate or the obstructive type to the delayed type. We interpreted this as an evidence of residual hepatic damage.

One patient, not included in this series, illustrates the value of the differentiation possible between obstructive and hemolytic jaundice. The patient had been operated on elsewhere three years previously and a splenectomy performed for supposed Banti's disease. The patient was admitted to our hospital with jaundice and upper abdominal symptoms characteristic of gallbladder disease. It was thought that perhaps the first diagnosis might have been hemolyticictero-anemia associated with stones. The van den Bergh test, however, showed hyperbilirubinemia of the hemolytic type. This case occurred when we were not sufficiently sure of the test to place sufficient reliance on it. Operation was performed, but no disease of the gallbladder was found.

The estimation of bilirubin in the blood has been of value in indicating the time at which common duct drainage may be removed with safety. We usually continue drainage until the bile appears physically normal. The tube is then clamped and the appearance of the stools noted. We now find that the test is of extreme value in showing whether or not the blood bilirubin increases after clamping the external drainage. If so, the obstruction still persists, and the drainage should be continued.

CONCLUSION

We feel that the van den Bergh test offers a promising field for investigation of pigment metabolism, and we are offering this study merely as a preliminary report. The results are suggestive of its possibilities in estimating the extent and permanence of hepatic cell damage.

Health Education.—The term "physical education" was formerly associated in the minds of many persons with the purely physical training activities. To make it include such activities as medical supervision and health habit training and instruction, there will need to be a new conception of the meaning of the term. The modern movement in health education has developed a number of activities which are deemed essential to a comprehensive health program. The present tendency is for such a program to include health training and instruction; physical training as related to health; health supervision of children and teachers to include daily health inspection; health examinations and health correction; preparation of teachers for health training and instruction; the hygienic arrangement and administration of the school program; mental hygiene, and hygiene of the school plant. This conception is in marked contrast with the old idea of health teaching, which gave only a stereotyped study from textbooks on physiology and anatomy with its manikins.—Harman, M. H., and Clark, Taliaferro: Study of Courses in Health Education, Public Health Bulletin, U. S. Public Health Service, April, 1925.

SURGICAL PROCEDURES IN JAUNDICED PATIENTS *

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Jaundice is a symptom of a condition in which bile escapes from its normal channels into the body tissues and stains them yellow or green. For many years the problems presented by the presence of jaundice have been studied with a great deal of interest and enthusiasm, but just within the last year or two new conclusions have been reached by several investigators from which much help is expected. The most recent studies concern hepatic function and the metabolism of bile pigment.

McNee [1] has thrown much light on the construction of the lobule of the liver and the relationship of the small bile duct to the portal veins and hepatic arteries, and his investigations have clarified our conception of the Kupffer cells, which make up the reticulo-endothelial system of the liver. McNee's experimental production of jaundice in birds seems to show that the hemoglobin is broken down and the bile pigment elaborated by the endothelial cells lying between the bile duct and veins, and not by the polygonal cells of the liver. Although these endothelial cells are a part of the hepatic structure, they also belong to the reticulo-endothelial system of Aschoff. The remaining portion of the system, the spleen, bone marrow, and lining of the serous cavities, is composed of the same endothelial cells.

Aschoff's [2] work on the reticulo-endothelial system is the foundation for the newer ideas regarding the formation of bile pigment outside the liver. There has been considerable controversy over this question, but Mann has definitely shown in his studies of hepatectomy in animals that considerable amounts of bile pigment are formed without the aid of the liver. Dehepatized dogs become jaundiced within three hours after hepatectomy, and the urine contains bile pigments. Within six hours, the normally colorless plasma of these animals shows a positive icteric tint, indicating the presence of bilirubin. The plasma becomes progressively more yellow, and within fifteen hours after extirpation of the liver, the sclerotics and mucous membranes are definitely yellow. The fat throughout the body is also found to be bile stained. All the chemical tests for bilirubin give a positive reaction, showing pigment in the urine, blood and fat. Mann and Bollman [3] feel that the chemical tests for bilirubin are not absolutely specific, but none of the substances that might give a positive reaction were found in the urine or blood of the animals.

Sheard, in the Section on Physics, Mayo Clinic, tried out a spectroscopic method for the determination of bilirubin, and with it has made some very interesting observations regarding the metabolism of bile pigment. Bile pigment from the gallbladder is the same as that found in the blood of jaundiced animals, whether jaundice is produced by obstruction of the bile tract with extirpation of the gallbladder or by extirpation of the liver. The amount of bilirubin formed in the absence of the liver is sufficient to justify the belief

* Read before the Section on Surgery, General and Abdominal, at the Seventy-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., May, 1925.

1. McNee, J. W.: Discussion on Jaundice, Brit. M. J. **2**: 495-498 (Sept. 20) 1924.

2. Aschoff, Ludwig: Lectures on Pathology, New York, Paul B. Hoeber, 1924.

3. Mann, F. C.; Sheard, C. H., and Bollman, J. L.: Studies on the Physiology of the Liver, XI, The Extrahepatic Formation of Bilirubin, Am. J. Physiol., to be published.

that to a large extent the liver is an excretory organ for bile pigment, just as the kidney is for urea. The estimation of bilirubin in the blood and other fluids by the spectroscopic method tallies with the quantitative measurement by the van den Bergh method.[4] Many tests have been devised to measure hepatic function, and some may yet prove to be very useful; but, so far as we know, present methods aid very little in determining a jaundiced patient's ability to withstand operative procedure. We have tested both the retention of dye and sugar tolerance. In estimating the value of these tests, we must keep in mind the compensatory changes which occur in the liver whenever a portion of that organ is damaged. An animal may maintain normal hepatic function after the greater part of the liver is excised, and it is therefore probable that in disease, so long as the liver is not completely involved, normal hepatic function is taking place.

All deeply jaundiced patients have dye retention 4 and marked disturbance in sugar tolerance, and yet may be fairly good operative risks without necessarily showing that tendency to ooze and bleed which is so frequently manifested by jaundiced patients postoperatively. Furthermore, these very jaundiced patients are not necessarily those that progress to such a state of hepatic insufficiency as is characterized by the cessation of biliary drainage. The quantitative test for bilirubin in the serum is of the greatest practical value. It indicates not only the degree of jaundice but also the preoperative treatment necessary and the operative risk. The van den Bergh test is a delicate method of detecting and quantitatively measuring small amounts of bilirubin in albuminous fluids, such as the serum. Qualitative differences in the bilirubin in different clinical forms of jaundice may also be detected, so that it is possible to distinguish between hepatic and hemolytic jaundice. The van den Bergh test has taken our attention from the color of the urine, feces and skin, and focused it on what is occurring in the blood. We agree with McNee that it is fully as important to know the quantity of bilirubin in the serum in cases of jaundice as it is to know the amount of urea retained in the blood in cases of renal disease, or of sugar in the blood in cases of diabetes. As a rule, the serum bilirubin test confirms the clinical manifestations and gives the same indication of the patient's condition as the degree and duration of the jaundice do. But there are times when the test and the clinical features do not agree, and it is then that the test justifies itself by postponing operation on patients with latent jaundice until adequate preparation has been made. Since the development of the van den Bergh test, we have also realized that under normal conditions there is a certain amount of bilirubin in the serum in the proportion of about 1 : 500,000 or 1 : 600,000, and furthermore that the proportion of bilirubin to serum will increase to 1 : 50,000 or 1 : 60,000 before any sign of jaundice is shown by the skin, urine or feces.[5] Lying between the point of normal bilirubin and clinical jaundice is the condition known as latent jaundice. And I believe that latent jaundice has more clinical significance than we realize. It is not very uncommon to find a patient who has had a stone with common duct, without icterus, react very much as the jaundiced patient sometimes does, particularly in his tendency to hemorrhage, which is a very much dreaded complication. With this test we have a method of recognizing the presence of latent jaundice before operation, and we can guard the patient against the possible sequelae. We can learn more concerning the condition of the liver by the van den Bergh test than by any of the other known tests.

The condition which we see daily in the operating room when operating for disease of the gallbladder, and which we call hepatitis, is not accompanied by jaundice, and it is therefore likely that, in spite of the apparent changes in the liver in these cases, there is little interference with the reticulo-endothelial cells or the polygonal cells. The condition termed biliary cirrhosis, which is found in all jaundiced patients, is entirely different. The liver in these patients is very firm, large and congested, and often bleeds from mere handling. If the capsule is stripped off or a piece of liver tissue excised, hemorrhage is very free and difficult to control, as the tissues do not hold sutures well. The livers of these patients are characteristic in appearance, which differs from those seen in patients with hemolytic jaundice.

McNee's work is probably the most valuable contribution on the mechanism of jaundice. He finds four circumstances under which icterus may arise: 1. The bile pigment formed in the reticulo-endothelial system passes through the polygonal cells normally to reach the bile capillaries, but is obstructed there and reabsorbed into the blood. 2. The polygonal cells are damaged and the bile pigment carried to them is unable to enter, so the bilirubin passes along the hepatic venous radicles into the general circulation. 3. There has been an excessive destruction of blood cells and too much bilirubin formed for the polygonal cells to deal with. Although some of the bile pigment may pass into the bile capillaries, the excess taken off by the hepatic vein into the general circulation will cause jaundice 4. Besides the damage and disorder function of polygonal cells, there is obstruction in the ducts, such as that caused by cholangeitis.

McNee then classifies jaundice into three clinical groups: obstructive hepatic jaundice, toxic and infectious hepatic jaundice, and hemolytic jaundice.

In studying this explanation of the mechanism of the production of jaundice and the clinical classification with the idea of arriving at some plan of treatment, certain difficult problems present themselves. We can accomplish a great deal in cases of obstructive jaundice by relieving the obstruction, and in the hemolytic cases by removing the spleen, thus taking out a part of the reticulo-endothelial system and preventing so much destruction of blood. But it is difficult to ascertain how much can be accomplished for patients with toxic and infectious hepatic jaundice by treating them surgically.

In a broad clinical sense, we usually think of jaundice in two settings, one in which colicky abdominal pain is the predominating symptom, and the other in which the jaundice is painless. In the first group, stones have usually caused obstruction, while in the second, the lesion is liable to be a malignant disease in the ampulla or pancreas or ducts, or some toxic or infectious condition in the hepatic tissues. The condition that exists in the liver and most of the other tissues in the body in these cases of deep jaundice is sufficient reason for considering the operative risk high.

Operative removal of obstructions, reconstructions, and sometimes anastomoses, are the only procedures that offer any relief, so that the demand for these operations is imperative. Fortunately, we can avail ourselves of certain methods of preoperative prepara-

4. Van den Bergh, A. A. H.: Discussion on Jaundice, Brit. M. J. **2**: 498-500 (Sept. 20) 1924.

5. Barrow, J. V.; Armstrong, E. L., and Olds, W. H.: A Clinical, Pathological and Operative Study of the Icterus Index, Am. J. M. Sc. **169**: 583-594, 1925.

tion that are extremely valuable for jaundiced patients. If the jaundice is subsiding, operation should be postponed as long as the patient shows a tendency to improve. The longer the jaundice has existed, the greater the risk, so that extreme care should be taken in long-standing cases. When the color of the icterus has changed to green, which sometimes becomes almost black, and particularly if there are associated petechial hemorrhages, operations are usually of no avail and should not be performed. These conditions seldom follow obstruction of the ducts by calculi, but are nearly always the result of obstruction by a malignant lesion that is beyond operative removal. No jaundiced patient should be operated on until a very careful investigation has been made into all features of the case. The coagulation time and the calcium time of the blood offer an index to the tendency to hemorrhage, and a great deal has been said about the preparation when that tendency is exaggerated. The value of the administration of calcium before operation cannot be overestimated. It is true that some patients with a slow coagulation time do not bleed, while others with a rapid coagulation time will; but these are the exceptions and indicate that this preoperative treatment should be employed in all instances. The serum bilirubin reflects the situation most accurately, and every effort should be made to reduce this pigment to as nearly normal limits as possible. Besides the administration of calcium, much can be accomplished by a short period of rest, increased fluids, glucose and free elimination. The three-day series of intravenous calcium, as suggested by Vincent, Walters and others, may be repeated several times to advantage in certain cases. By spending from one to two weeks in the preliminary preparation in these cases, it has been possible to obtain more satisfactory results than in previous years, but there is still opportunity for improvement in these rather desperate cases.

In the last year, 142 patients with disease of the common duct were operated on in the clinic; 104 of these had some degree of jaundice at the time of the operation. Eleven of the 142 patients died, but in only four was hemorrhage a factor in the death. While four deaths is too many, it is very much better than our former percentage; the improvement indicates that a great deal has been accomplished by preoperative preparation, and that still better results may be obtained. Some of these patients were not good risks because of other conditions, and several of the deaths were attributed at necropsy to cardiac and pulmonary diseases. This would seem to suggest that these operations should be carried out with as little trauma and as little irritation to the respiratory tract as possible.

There are certain technical points in the different operations that are of considerable importance. Most of the operations are for stone in the common duct, and it is very important that every stone should be removed. This is sometimes impossible, as it has been shown at necropsy that occasionally the intrahepatic ducts are lined with calculi. Overlooking a stone in one of the intrahepatic ducts may result seriously.

Ordinarily, the gallbladder should not be excised when the patient is deeply jaundiced. If it contains stones or infection it should be drained; excision may be necessary later. Sometimes it is absolutely necessary to remove the gallbladder at the original operation. The common duct should always be drained after the removal of stones or after opening it for exploration. A Robson drain in the hepatic duct, to be left ten days, usually does very well, but in cases of recurring stone or severe infection, a Deaver T tube, to be left in for weeks, has been satisfactory in my experience. The opening in the duct can be closed around these tubes and no further drain will be necessary. Good free drainage of bile to the outside in these cases means a smooth convalescence. Any tendency for the cessation of biliary drainage is looked on as the beginning of serious trouble.

Unfortunately, it is necessary to operate in a considerable number of cases for postoperative strictures of the common duct. Sometimes it is possible to excise or dilate the stricture and repair the duct; but the most satisfactory results in these cases have been obtained by joining the proximal end of the duct, which is usually dilated, to the duodenum over a rubber tube, which is left to pass out through the intestine. Care should be taken to make a large opening in the duodenum and as accurate an anastomosis as possible, because recurrences of the stricture are not uncommon. This operation is called hepaticoduodenostomy, because, as a matter of fact, the common duct is usually very short, and so in reality the operation is an anastomosis between the liver and the duodenum.

In general, operations for malignant disease in these regions are palliative. A few brilliant cases are recorded in which a carcinoma of the ampulla was removed, and others of resection of the ducts and excision of tumors of the pancreas. I have performed radical operations for carcinoma of the ampulla without very satisfactory results. In most of the cases of painless obstructive jaundice, good results have been obtained by anastomosing the fundus of the gallbladder to the stomach. Some of the patients with supposed malignant disease have remained well, showing that the obstructing lesion was inflammatory. Many of the patients with malignant disease have remained well for a long time. I have performed a cholecystogastrostomy in several cases of infectious hepatic jaundice in which there was bile in the gallbladder, but no evident obstruction, and a number of these patients have seemed to be benefited.

I have wondered whether draining even a small amount of bile into the stomach might have some effect on the jaundice-producing mechanism of the liver. The jaundice has not cleared up completely, but the general condition of the patients has seemed better.

In some of the most deeply jaundiced cases with marked change in the condition of the liver, I have felt that I have accomplished something by needling the tense, congested liver at the same time as I drained the common duct. Even these small, multiple needle punctures of the liver bleed considerably, but they reduce the tension and congestion markedly. In certain cases the needle has passed into one of the ducts, and white bile has escaped from the needle holes. The bleeding from these punctures is severe enough to require a gauze compress, but it is not too much, and it seems to be helpful in the extreme cases.

SUMMARY

A practical application is made of the work of McNee, van den Bergh, Aschoff and Mann to the surgical treatment of jaundiced patients. The most valuable aid in the handling of jaundiced patients is the van den Bergh test for the quantity and quality of bile in the serum.

Much has been accomplished in the preoperative treatment of jaundiced patients, which means more than just the intravenous administration of calcium. I believe that in deeply jaundiced patients the common

ducts should usually be drained with a tube, and the gallbladder should be drained if necessary but not removed.

Hepaticoduodenostomy is the procedure of choice in cases of postoperative stricture. Cholecystogastrostomy offers considerable relief in certain types of inoperable malignant diseases, and also seems helpful in cases of hepatic infectious jaundice.

Multiple needle punctures in cases in which the liver is badly damaged allow a certain amount of blood and fluid to drain out, and may tend to restore the function of the liver.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. LOBINGIER, MULLER, RAVDIN AND RAVDIN, AND JUDD

DR. JOSHUA E. SWEET, Philadelphia: Dr. Lobingier calls attention to a very fundamental thing in surgery that seems to be forgotten, that infections which get into the blood stream are the dangerous ones. He does not mean that if the stump of the gallbladder is left a new gallbladder will form. I would not want you to go away with too deep an impression concerning the importance of jaundice. You may have gathered from these three papers that jaundice is very important. It is not the jaundice that kills the patient. I want to congratulate the authors on their wanderings into unknown fields. I think we shall find that as soon as the chemists get away from their pursuit of the hydrogen ion into more definite fields we shall get more information concerning the bile salts. Then we shall get still more definite results as to the practical importance of these various tests.

DR. F. T. VAN BEUREN, JR., New York: There is no question that patients with biliary obstruction are desperately ill. In metropolitan hospitals the mortality is very much higher than in hospitals where cases can be selected more carefully and where emergency cases do not demand immediate attention. The improvement in the results has not been remarkable in the last ten years. Ten years ago at one of the large hospitals in New York, the mortality was about 32 per cent. in cases of obstruction of the common bile duct treated surgically. In the last nine years at another large hospital in New York, the mortality has been about 33 per cent., this in spite of every attempt to prepare patients carefully before operation. Whether it is jaundice or infection or the multiple changes that are due to unknown causes that makes these cases such desperate ones, it is hoped that by careful study, such as is now being carried on, the future may have a very much better mortality record. I was interested in Dr. Lobingier's advice to drain more frequently in infections of the gallbladder. The drainage that he institutes through the stump of the gallbladder or cystic duct seems to be an excellent and ingenious one. I looked up the cases at the Presbyterian Hospital in which drainage for biliary obstruction and obstruction of the common duct had been done and found that only 20 per cent. had been drained through the cystic duct; in 4 per cent. an attempt to drain through the cystic duct had been made, but it had not been possible on account of the deformity, and direct drainage through the common duct had to be instituted. If we can get some better means of differentiating cases before operation, it will be of the greatest advantage to know whether complete operation as well as drainage of the common duct should be undertaken at one time, or whether a preliminary operation of drainage of the common duct should be made followed later by removal of the gallbladder. The progress reported by Dr. Judd is most remarkable, and I hope that his results may be equaled in other parts of the country.

DR. B. B. DAVIS, Omaha: A few years ago, when I first heard of the proposition to make functional tests of the liver, it seemed to me rather amazing and almost absurd to try to make tests of the functions of an organ of which we were so ignorant, but I have come to the conclusion from a good deal of study of this subject that as time goes on these tests are going to aid very materially in reaching a better conclusion with regard to some of these patients. So far as diagnosis is concerned, the van den Bergh test is going to be of inestimable assistance. Take, for instance, a gallbladder case in which one has considerable doubt as to the diagnosis. In a case of this type there is no jaundice but a larger percentage of bilirubin in the blood than usual, especially after an attack. Here the test would be an aid in diagnosis, and also when patients have been jaundiced a long time. A falling bilirubin index means that the jaundice is on the point of subsiding. Furthermore, the indirect reaction indicating damage to the hepatic cells will be a good warning as to whether this patient is in condition to stand operation. In the evaluation of a test of this kind, it must be used for some time before we are going to be in position to say anything about it. One thing we have found out is that catarrhal jaundice is not only obstructive but also toxic.

DR. JOHN B. DEAVER, Philadelphia: I believe that Dr. Lobingier's theory is all right, but in my experience it has not worked out that way in practice. What he means is drainage through the stump of the cystic duct. There is a risk of the formation of a new gallbladder or diverticulum which may give as much trouble as the original gallbladder. In my experience, this method is not satisfactory. I have drained in quite a number of cases through the open cystic duct. Furthermore, it is difficult to be sure that one examines the common duct through the cystic duct correctly. My system of examination of the common duct depends a good deal on whether or not I am satisfied to open the duct proper. It is very difficult to get probes into the cystic duct, especially when there is a diseased gallbladder. I have opened the common duct and put in a T tube, as Dr. Judd does. That has been perfectly satisfactory. I am a strong believer in laboratory tests. Very often I do not get much comfort from them, but they all work out in due season without shadow of doubt. My experience with jaundice is that in the cases that are generalized, the results are exceedingly good. In the generalized jaundice cases the ultimate results are bad because in most cases malignancy is present. Fifty per cent. of the patients will live, and the other 50 per cent. will die in three or four months.

DR. D. C. STRAUS, Chicago: Early in 1924 Dr. Friedman of Chicago and I checked over the value of the test for bile in a series of twenty-nine cases proved by operation. These were cases of gallbladder disease, chiefly gallstones, with no visible jaundice. Our idea was to prove in how many of those cases there was latent jaundice. We used the quantitative test of Meulengracht and the van den Bergh test, and clinically we used the Fouchet test as a means of determining the presence of latent jaundice. The Fouchet reagent, when added to bilirubin, changes bilirubin to biliverdin, and that test is specific for bile. Dr. Friedman checked up on a large number of normal persons and found that bilirubin was not present in the blood in sufficient quantity; in other words, the test was negative. The method consists in withdrawing 5 c.c. of blood from a vein. The blood is placed in a centrifugalizing tube and allowed to clot. Before centrifugalizing, from 1 to 3 drops of the serum is placed on a white porcelain dish, an equal amount of Fouchet's reagent is added, and the two are mixed together. If bilirubin is present in abnormal amount, a distinct green appears. That test is not positive in normal persons. Bilirubin must be present in pathologic amount before the green shows. In this series of twenty-nine cases of proved gallbladder disease in which there was no positive jaundice we found in 67 per cent. an abnormal amount of bile; in other words, the test showed green. These were classified as interval cases because there was no pain present. Those patients did have digestive disturbances, such as belching. Pain was present in about 93 per cent. of the patients at the time the test was made. In other conditions, with hemolytic jaundice, the test is positive in 50 per cent. of the cases. In cases of pneumonia without jaundice, the test was positive, so that it does not differentiate between pneumonia and obstructive jaundice, but it shows whether or not there is an abnormal presence of bilirubin in the blood. All we

wanted to prove was whether or not gallbladder disease was present.

DR. ANDREW S. LOBINGIER, Los Angeles: I think Dr. Sweet misunderstood me in saying that if a portion of the gallbladder was left behind it might form a new gallbladder. When one reads the paper one will find that in all the cases in which it was possible to do so, the mucosa was dissected out, making it impossible for a new gallbladder to form. Dr. Van Beuren stated that the records of the hospitals in New York which he consulted showed that drainage of the cystic duct was difficult. This may be true. It has been my experience that the case in which the cystic duct is not patent is not a suitable case for this drainage. When one does a cholecystectomy, one ties off the cystic duct, and there is no drainage unless one turns the case over to an internist—who will try duodenal drainage. We do that in all cases in which the cystic duct is not patent. We do it also if we are not certain that it is patent. My desire was not to produce a new operation, which is always unpopular, but to call attention to certain pathologic conditions in the liver which might be improved by a more definite, systematized method of drainage.

DR. ELIZABETH RAVDIN, Philadelphia: We realize the limitations of the Van den Bergh test, or, at least, that it has not been as yet sufficiently tried out to make its conclusions definite. However, we have found in a series of cases which have come to operation and in cases on the medical side which have been differentiated clinically in their diagnosis into groups of chronic cholecystitis without stones or chronic cholecystitis with stones that there are cases of chronic cholecystitis without stones, cases of impacted stone without cholecystitis and cases of chronic cholecystitis which have shown no symptoms of stones but which have not been proved by operation to be without stone. These cases fall into the group giving a normal Van den Bergh reading. Only one or two cases have been the exception to this. In the second group are cases of chronic cholecystitis with stone which have been proved by operation or in which the patients have had definite attacks of gallstone colic. With few exceptions, these cases have all showed high Van den Bergh readings. By high Van den Bergh readings we do not mean readings that lie within the range of jaundice. With the other test, the Fouchet, we did not find it strong enough to give the readings that we found in the Van den Bergh test to be around normal. In cases of jaundice, we know that cases of hemolytic jaundice show blood in the urine, so that the Van den Bergh test does not offer any new differentiation if the jaundice is extensive. In cases with very slight jaundice, when the obstruction is not enough to cause a flow of bile into the blood or is not enough to cause a flow of bile into the urine, the Van den Bergh test is considered of importance. We have followed cases of jaundice after operation with both the direct and indirect type of drainage, and we find a gradual decrease in the cases with drainage in the quantitative test, and very frequently the maximum reaction will disappear before the increase in the indirect reaction has disappeared. As Dr. Muller said, we interpret those cases as cases of residual hepatitis that has not yet cleared up.

Industrial Poisoning.—The sources of our knowledge of industrial poisoning in the United States are neither full nor, for the most part, accurate. We lack the sickness insurance system which obtains in all industrial countries in Europe and which brings to light the incidence of illness of all kinds in all groups of workers. Nothing takes its place in this country. Our private insurance companies sometimes gather important and trustworthy data, but these are never all inclusive and never can be; they are always restricted to the group of individuals insured in that company. The census reports are of deaths only, not illness, and the death records lose much of their value because of a poor classification of workers, which puts into the same category men doing work of very different degrees of danger, as, for instance, paperhangers and painters. Trades union records are seldom of value.—Hamilton, Alice: Industrial Poisons in the United States, New York, the Macmillan Company, 1925.

THE DIGESTION OF CONNECTIVE TISSUE

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The time honored and generally accepted view that pepsin and hydrochloric acid are necessary for the digestion of connective tissue has again been questioned, this time by Buckstein.[1] He sewed the tip of a duodenal tube to the rubber tubing by means of catgut or kangaroo tendon, allowed it to pass on to the jejunum, and demonstrated that after a lapse of some time the tip became detached from the rubber tube. From this experiment he drew the conclusion that the catgut or kangaroo tendon was digested in the small intestine. A previous experiment with similar results on a patient with achylia gastrica [2] fortified him in the correctness of his conclusions.

The publication of the results of these experiments under the challenging title of "The Fallacy of the Sahli Desmoid Reaction" drew fire from the pen of the originator of this well known test. In a letter to the editor of THE JOURNAL, Sahli [3] sharply criticized Buckstein's communication and pointed out the following reasons for the inacceptability of the conclusion arrived at by Buckstein:

1. The uncertainty as to the actual position of the tube.

2. The lack of proof that the catgut was actually digested and not broken in some other way, as by friction along the side of the tube or tip, or for some other reason.

3. The possibility of pepsin-hydrochloric acid being present at a considerable distance away from the stomach.

In a curt and pointed rejoinder, Buckstein [4] disposed of the criticism as regards the roentgenologic evidence of the position of the duodenal tip in a manner which seems to me perfectly satisfactory. The other points, however, he failed to take up at all.

Buckstein is not the first one to challenge the correctness of Adolf Schmidt's dictum that connective tissue is digested in the stomach only. Saito,[5] as far back as 1906, asserted that he had proved that pancreatic juice can digest connective tissue. Einhorn [6] in the same year and the year following [7] published results of experiments proving that catgut may be digested in the intestines as well as in the stomach, though its digestion in gastric juice is more rapid and complete. Einhorn has fed catgut tied to beads to patients with achylia gastrica, and in some instances the catgut was not recovered from the stools, which fact was supposed to prove its digestion without the aid of gastric ferments. He, as well as Saito, succeeded in obtaining digestion of catgut in vitro by other than gastric juices, while other equally reliable observers failed to get the same results. Baum-

1. Buckstein, Jacob: The Fallacy of Sahli "Desmoid Reaction," J. A. M. A. **81**: 1341 (Oct. 20) 1923.
2. Buckstein, Jacob: The Intestinal Digestion of Connective Tissue, Arch. Int. Med. **30**: 761 (Dec.) 1922.
3. Sahli, Hermann: "The Fallacy of Sahli 'Desmoid Reaction,'" J. A. M. A. **82**: 51 (Jan. 5) 1924.
4. Buckstein, Jacob: "The Fallacy of Sahli 'Desmoid Reaction,'" J. A. M. A. **82**: 146 (Jan. 12) 1924.
5. Saito: Experimental kritische Untersuchung über die Sahlische Desmoidreaction, Berl. klin. Wchnschr. **40**: 1305 (Oct. 1) 1906.
6. Einhorn, Max: Arch. f. Verdauungskr. **12**: 26, 1906.
7. Einhorn, Max: Arch. f. Verdauungskr. **13**: 35, 1907; Experiences with the Bead Test for Ascertaining the Functions of the Digestive Apparatus, ibid., p. 475.

stark and Cohnheim [8] have definitely proved by animal experiments that connective tissue is not digested without pepsin and hydrochloric acid, and that peptic digestion continues for a considerable length of the intestine.

This remarkable disagreement as to results of simple laboratory procedures which can be readily repeated and checked up is rather disconcerting. There should be no two opinions on the subject any more than whether litmus turns red or blue with acid. The question has not been settled with absolute certainty as yet, though even the defenders of intestinal digestion of connective tissue assert that it takes place only occasionally and under exceptional conditions, the nature of which have not been determined with any degree of exactness.

Clinically, it is fairly generally accepted that connective tissue is digested in the stomach. The latest publications on gastro-enterology adhere to this view. Aaron [9] states that "if connective tissue remnants appear in the feces, there is a disturbance of gastric digestion present." Again,[10] "the connective tissue test is an exceedingly fine one for ascertaining the functional condition existing in the stomach." Gant [11] mentions the presence of connective tissue remnants in the stool as proof of deficient gastric function. White [12] also adheres to this orthodox view. Kuttner [13] considers the presence of connective tissue in the feces as evidence of disturbed gastric function. Faber [14] accepts Schmidt's dictum unequivocally. Boas,[15] in speaking of achylia gastrica, quotes Adolf Schmidt, Knud Faber and himself in support of the statement that connective tissue remains undigested in the absence of pepsin and hydrochloric acid. Le Noir and Agasse-Lafont [16] state that the finding of undigested connective tissue in the feces (according to Schmidt's connective tissue test) is evidence of either insufficient gastric secretion and peptic digestion or too hasty evacuation. Von Noorden,[17] in his latest revision of Adolf Schmidt's book on Intestinal Diseases, lays emphasis on the fact that gastric hypo-acidity or anacidity is responsible for lack of digestion of connective tissue and considers disturbances of peptic digestion as the only cause for appearance of connective tissue in the stool in excessive amounts. Of course, he does not consider the mere finding of connective tissue fibers in the stool as proof of anacidity, but the presence of excessive quantities of connective tissue fibers in the stool should direct our attention to the stomach.

In view of the fact that, in spite of adverse criticism, Schmidt's view is adhered to by the predominating majority of clinicians, Buckstein's assertions deserve careful study. If his conclusion is correct, then we must revise our ideas on the importance of finding undigested connective tissue fibers in the stool.

As stated previously, Buckstein failed to answer Shali's criticism that the catgut, with which he sewed on the tip of the duodenal tube, might have broken off in a mechanical way during the time it remained in the small intestine; also that pepsin and hydrochloric acid might have been present at a considerable distance away from the stomach.

It occurred to me that if the catgut could be protected from any possible chance of being acted on by pepsin and hydrochloric acid and also from any chance of getting detached, then the results could not be questioned any more. Einhorn's method of coating the capsule with fat is not at all reliable, as at any time during the experiment the coating may rub off in some place or become defective in some other manner, with the resultant penetration of the gastric juice into the interior of the capsule. I have definitely found that a pin-point defect in the coating of the capsule is enough to vitiate the results. Another possible flaw in Einhorn's technic is that he does not seem to secure the catgut to the bead sufficiently well to be certain that the disappearance of the catgut is due to its digestion and not to the mechanical loosening of the knot, with the slipping out of the catgut from the bead and its loss in the intestines. The softened and swelled catgut very readily disengages itself from the bead during its long and slippery sojourn along the many feet of the gastro-intestinal tract, unless particular care is taken to secure it to the bead.

METHOD

A good quality of plain catgut was cut in lengths of 7 inches (one-fourth strand) and the ends tied securely to two beads, which were also joined by a piece of silk. By varying the length of the silk thread, either the catgut or the silk was made to hold the two beads together. Thus, when the silk was the shorter, there was no tension or strain put on the catgut. When, on the other hand, the catgut was the shorter, it held the beads together until it either was digested or torn. In this manner the tensile strength of the catgut could be judged, whether or not it is able to withstand the drag and pull of intestinal peristalsis.

The entire thing was then enclosed in a gelatin capsule. Some of the capsules were coated with several layers of keratin and phenyl salicylate. It took at least two coats of each to make the capsules safely enteric; i. e., to protect them from any possibility of gastric digestion. The capsules were very carefully inspected before they were used for the experiments, as a pin-point break in the continuity of the coating was sufficient to allow the solution of the capsule and subsequent digestion of the catgut.

The coated and uncoated capsules were fed to normal persons and to patients with gastro-intestinal disturbances, and the beads with whatever was attached to them recovered from the stools. Three persons with presumably normal digestion were fed both uncoated and coated capsules. Two patients with constipation were given the coated capsules. Three patients with gastric hypermotility were similarly studied. To four patients with anachlorhydria, uncoated capsules were administered.

RESULTS

It was found that the thickest catgut, even chromicized, was just as readily digested as the thinnest.

When the distintegration of the gelatin capsule in the stomach and for some distance in the small intestine was prevented by a proper enteric coating, the catgut was uniformly recovered from the stool unchanged.

A thin coating with phenyl salicylate or keratin is not sufficient to prevent the digestion of the catgut, either because the coating is not perfect and some gastric

8. Baumstark, Robert: Ueber Bindegewebsverdauung und Magenverdauung im Darme, Verhandl. d. Cong. f. inn. Med., 1910, p. 368. Baumstark, Robert; and Cohnheim, Otto: Ueber Bindegewebsverdauung, Ztschr. f. physiol. chem. **65**: 477, 1910.
9. Aaron, C. D.: Diseases of the Digestive Organs, Ed. 3, Philadelphia, Lea & Febiger, 1921, p. 119.
10. Aaron: Diseases of the Digestive Organs, p. 674.
11. Gant, S. G.: Diseases of the Rectum, Anus and Colon, Philadelphia, W. B. Saunders Company **1**: 92, 1923.
12. White, F. W., in Nelson's Loose Leaf Medicine **5**: 136.
13. Kuttner, Leopold: Spezielle Pathologie und Therapie innerer Krankheiten, Berlin, Urban & Schwarzenberg, Part 1, **6**: 654, 1923.
14. Faber, Knud: Spezielle Pathologie und Therapie innerer Krankheiten, Berlin, Urban & Schwarzenberg, Part 1, **6**: 1053.
15. Boas, I.: Diagnostik und Therapie der Magenkrankheiten, Ed. 7, Leipzig, George Thieme, 1920, p. 341.
16. Le Noir and Agasse-Lafont: Noveau traité de médecine **13**: 414.
17. Von Noorden, C.: Adolf Schmidt's Klinik der Darmkrankheiten, Ed. 2, Muenchen, J. F. Bergman, 1921, pp. 52, 126 and 269.

juice enters the capsule while it is still in the stomach, or because the keratin is dissolved off a short distance from the stomach, where pepsin and hydrochloric acid digestion is still possible.

A moderate degree of gastric hypermotility did not interfere with the digestion of the catgut when administered in an uncoated capsule.

In all cases of anachlorhydria the catgut was recovered from the stools when the precautions described above were carefully observed.

The catgut was only partly recovered in three instances, in each case when the silk between the beads was longer than the catgut and the beads were therefore held together by the catgut. On two occasions it was No. 5 catgut that gave way.

Results of Experiments

Case	Gastro-Intestinal Status	Capsule Given	Appeared in Stool in	Digestion of Catgut	Comment
1	Normal	Uncoated, catgut No. 5	36 hours	Complete	No trace left
		Enteric coated, catgut No. 3	36 hours	None	Catgut unchanged
2	Normal	Uncoated, catgut No. 5	30 hours	Complete	
		Uncoated, chromic No. 3	32 hours	Complete	
		Enteric coated	30 hours	None	Catgut unchanged
3	Normal	Uncoated	42 hours	Complete	
		Uncoated, chromic No. 3	40 hours	Complete	
		Enteric coated	44 hours	None*	
4	Gastric hypermotility	Uncoated, catgut No. 5	24 hours	Complete	
		Uncoated, chromic No. 3	24 hours	Complete	
		Enteric coated, catgut No. 3	27 hours	None	
5	Gastric hypermotility	Uncoated, catgut No. 4	18 hours	Complete	
		Enteric coated	26 hours	None	
6	Gastric hypermotility	Uncoated	26 hours	Complete	
		Enteric coated	24 hours	None	
7	Constipation	Uncoated	68 hours	Complete	
		Enteric coated	80 hours	Complete†	
		Enteric coated	78 hours	None	
8	Constipation	Enteric coated	74 hours	½ of catgut left‡	
		Enteric coated	69 hours	None	
9	Anachlorhydria	Uncoated	38 hours	None	
10	Anachlorhydria	Uncoated	26 hours	None	Catgut torn
11	Anachlorhydria	Uncoated	34 hours	None	
12	Anachlorhydria	Uncoated	32 hours	None	

* The catgut was found torn, about two thirds of it attached to one bead. The portion recovered showed no evidence of digestion.

† The coating was probably defective or the catgut loosened and lost during its long stay in the gastro-intestinal tract. The experiment was repeated with a carefully selected capsule, and the catgut was recovered from the stool unchanged.

‡ The part of the catgut that was left showed no evidence of digestion, the end was ragged, and the thickness of the catgut was unchanged and uniform. The silk thread connecting the beads must have been too long, and the tension on the catgut caused it to break with the loss of one half of the strand.

SUMMARY

The accepted theory that pepsin and hydrochloric acid are essential for the digestion of connective tissue has been questioned recently, and proof offered to the contrary.

If digestion of connective tissue can take place without gastric secretion, then the clinical significance and interpretation of the finding of connective tissue in the stools would have to be revised accordingly.

A brief review of recent publications shows a fairly general consensus of opinion in favor of Schmidt's observation that connective tissue is digested by the gastric juice.

The question can be definitely decided by the method described.

Investigations by means of this method prove that no digestion of connective tissue as represented by catgut takes place without gastric juice.

THE EFFECT OF ULTRAVIOLET RAYS ON THE HORMONES OF THE OVARIAN FOLLICLE AND PLACENTA *

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The action of substances affecting growth, both hormones and vitamins, has developed unique biologic contacts. The work of Hess [1] and others has shown the power of ultraviolet rays in imparting antirachitic properties to vegetable oils. It has further been demonstrated recently that ultraviolet rays have a destructive action on insulin.[2] In view of the increasing use of ultraviolet rays as a therapeutic agent, certain qualitative effects of these rays on the follicular hormone are reported here.

The action of the follicular hormone includes the production of striking growth in the female genital organs. By injections of this substance into spayed rats and mice, it has been possible to induce a degree of growth in the genital tract equal to the maximum attained in the normal animal under the influence of its own ovarian secretion.[3] In further studies a standard "rat unit" has been adopted, consisting of the least amount of hormone that will produce a maximum reaction in the test animal the third day after the first injection. This makes possible a roughly quantitative measurement of the active material extracted from various genital tissues. By using this reaction of rats to extracts made up in series of graded dilutions—exposing one series of solutions to ultraviolet rays and keeping a second unexposed series for control—the effect of ultraviolet rays on varying concentrations of the follicular hormone has been determined.

The first series of tests were made with corn oil solution of the residue from the lipoid extraction [4] of the follicular contents of pig ovaries. The ultraviolet rays were produced by a Cooper Hewitt mercury vapor lamp operating at 7.5 amperes and from 125 to 130 volts. The open dishes and vials containing the samples were exposed for eighteen hours at a distance of 4 inches from this lamp, and the exposed material was cooled by an air current from an electric fan. The temperature of the samples did not exceed 35 C. during the period of exposure, and the average temperature of fluids under the lamp was about 30 C.

* From the Departments of Anatomy and Physiology, University of Missouri School of Medicine.

1. Hess, A. F.; Weinstock, Mildred; and Helman, F. D.: The Development of Antirachitic Potency in Phytosterol and Cholesterol Following Irradiation, Proc. Soc. Exper. Biol. & Med. **22**: 227 (Jan.) 1925; Oil Activated by Irradiation; II, Separation into an Antirachitic and an Inactive Fraction, ibid. **22**: 76 (Nov.) 1924.

2. Ellis, M. M., and Newton, E. B.: Changes in the Physiological Action of Insulin Induced by Exposures to Ultraviolet Light, Am. J. Physiol., to be published.

3. Allen, Edgar; Francis, B. F.; Robertson, L. L.; Colgate, C. E.; Johnston, C. G.; Doisy, E. A.; Kountz, W. B., and Gibson, H. V.: The Hormone of the Ovarian Follicle: Its Localization and Action in Test Animals, and Additional Points Bearing upon the Internal Secretion of the Ovary, Am. J. Anat. **34**: 133 (Sept.) 1924.

4. Doisy, E. A.; Ralls, J. O.; Allen, Edgar; and Johnston, C. G.: The Extraction and Some Properties of an Ovarian Hormone, J. Biol. Chem. **61**: 711 (Oct.) 1924.

Decreasing amounts of the exposed corn oil solution, diluted to a volume of 3 c.c., were injected into spayed test animals in three 1 c.c. injections on the first day, and equal dilutions of the unexposed solution were injected into another lot of animals as controls. Observations made on the second, third and fourth days after injections showed the control solution (unexposed) to be positive in 1:6 dilution, plus or minus in 1:9, and negative in 1:12. The solution that had been exposed to the light for eighteen hours was negative in all concentrations used, at least two rat units of hormone having been destroyed by the exposure. The first series (L. F. No. 1) was an extract of liquor folliculi from pig ovaries.

A second series (Cot.) of extracts from the cotyledonary placenta of cows was made up in the same way. The control tests were positive in 1:9 dilution and negative in 1:12. The irradiated series were all negative with the exception of the 1:3 dilution, which returned a positive test. More than 1.3 rat units of hormone were destroyed by this eighteen hour exposure.

Effect of Ultraviolet Rays on the Hormones of the Ovarian Follicle and Placenta

		Results of Tests in Spayed Rats						
		1st Series (L. F. No. 1)		2d Series (Cot.)		3d Series (Pl. 10)		
Original Extract, C.c.	Dilution (to 3 C.c.)	Control	Irradiated	Control	Irradiated	Control	Irradiated Residue	Irradiated Oil*
1.0	1:3	+	−	+	+	+	±	+
0.5	1:6	+	−	+	−	+	±	+
0.33	1:9	±	−	+	−	+	−	+
0.25	1:12	−	−	−	−	±	−	+
0.2	1:15	..	..	−	−	−	..	..

* Residue not exposed, but dissolved in irradiated oil.

In the first two series, the hormone was irradiated while dissolved in oil. In a third series (Pl. 10) the residue of an extract of human placenta was spread evenly in thin films over the bottom of Petri dishes. These films of residue were then exposed to the ultraviolet rays as described above, and after the exposure were dissolved in untreated maize oil for injection. The controls proved to be positive in 1:9 dilution, plus or minus in 1:12, and negative in 1:15. The irradiated residues, however, returned indeterminate tests in 1:3 and 1:6 dilutions, and negative tests in 1:9 and 1:12. As a further control, another portion of this residue of extract of human placenta was dissolved in corn oil that had been exposed in a thin film to the ultraviolet rays for from eighteen to twenty-four hours. The tests of these solutions were all positive.

It is readily seen from the examination of the table that exposure to ultraviolet rays in air destroys both the ovarian hormone and the placental hormone, and, further, that the action is on the hormones rather than on the oil used as a solvent. The positive test in a 1:3 dilution of the irradiated extract in the second series and the two indeterminate tests of irradiated residues in the third series indicate that the destruction of these hormones is gradual rather than sudden. This destruction of these hormones by the ultraviolet rays may possibly be associated with some oxidative change, as it is well known that ultraviolet rays promote the oxidation of some substances and also that molecular oxygen is partly transformed by ultraviolet rays into ozone.

We intend at the earliest opportunity to continue this work, but it seems desirable to present the results already in hand.

DOCHEZ SCARLET FEVER ANTITOXIN IN THIRTY-ONE CASES

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I have observed thirty-one cases treated with unconcentrated scarlet fever serum by the Dochez method. In the thirty-one patients treated, twenty-one developed serum disease. These reactions ranged in severity from slight urticarial eruptions to a generalized edema, and the temperatures as high as 105 F. Six of the cases showed anaphylaxis in the first hour. Eighteen cases either occurred or recurred from the second to the seventh day. Nine patients had an elevation of temperature from 100 to 105 F.

The following are typical of two of the more severe cases of serum disease:

CASE 1.—A girl, aged 5 years, was exposed to scarlet fever; she was given 3 c.c. of unconcentrated scarlet fever serum. Three days later, she developed symptoms of marked generalized edema and urticaria. Accompanying these were nausea, aching pains in the extremities and a temperature ranging from 100 to 104.2 F. These symptoms subsided gradually over a period of three days. The urine was normal, and the blood showed hemoglobin, 85 per cent.; leukocytes, 12,500, and erythrocytes, 5,200,000.

CASE 2.—The patient received 3 c.c. of unconcentrated serum the day of the exposure to scarlet fever. Thirty minutes after the injection, there occurred marked urticaria and a generalized edema. These disappeared in a few hours but developed again in four days, accompanied by generalized discomfort and a temperature ranging from 100 F. to 102 F. The course of the second attack lasted two days. The urine was normal, but the blood showed a leukocytosis of 13,500.

Twenty-seven of these treatments were given to immunize. In twenty-four cases in which the children were given 3 c.c. doses of serum the day of exposure, none developed scarlet fever, although sixteen had serum disease.

In the other three cases, 10 c.c. of the serum was given the second day after exposure, and only one escaped the fever, the other two having moderately severe attacks of scarlet fever in spite of additional therapeutic doses of 30 c.c. each.

In the four cases treated from a therapeutic standpoint, the first patient was a child, aged 3 years. The onset was very acute, with temperature 104 F., marked edema, redness of throat and rash, which continued. The Dochez serum was secured with difficulty and 40 c.c. of unconcentrated serum was injected on the seventh day. There was an immediate serum reaction and very marked edema. No improvement was noted, and the dose was not repeated because of the extreme anaphylaxis. Death occurred on the fourteenth day.

In the other cases 30 c.c. doses of serum on the second day of the disease were given, but two of the children had moderately severe courses of the disease and went on to uncomplicated recovery.

CONCLUSIONS

1. Serum disease occurred in twenty-one cases out of a possible thirty-one.

2. The size of the dose apparently did not influence the reaction.

3. Immunization was established in twenty-four cases, all of those treated the day of exposure.

4. Serum injected the second day after exposure did not protect two patients out of three.

5. Therapeutic injections gave little apparent relief.
6. One advanced case showed no improvement with 40 c.c. of unconcentrated serum, and there was a serious serum disease.

INFECTION OF THE TONSILLOGLOTTIC REGION ASSOCIATED WITH CERVICAL CELLULITIS

TEN CASES WITH FOUR DEATHS *

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While several of the cases here reported might well be called Ludwig's angina, I have purposely avoided the term, partly because it is somewhat controversial, but especially because the affection is not an angina and Ludwig was not by fifty years the first to describe accurately the infection. In 1786, Kirkland [1] reported a case of phlegmonous infection of the floor of the mouth and deep cervical region which had all the classical symptoms of the so-called Ludwig's angina. Similarly, Wells,[2] in 1809, twenty-seven years before Ludwig's report, gave a graphic account of a case Moreover, Jacques [3] states categorically that Gensoul of Lyons ten years before Ludwig made a very full report of such cases. Ludwig's name is identified with this type of deep cervical abscess largely because of the minute and exhaustive details of his reports, together with the fact that his observations were based on what appeared to be an epidemic of the disease, during which one of the royal family succumbed to it.[4] These circumstances served to focus attention on his contribution to the literature at the time.

The abundant vascular and lymphatic supply of the neck, its narrow confines containing so many important structures, and its very loose connective tissue leading direct to the mediastinum all constitute a field inviting the spread of infection when once established here. Dangerous narrowing of the chink of the glottis, normally none too wide, by the inevitable edema of this region is a serious aspect of cellulitis and one that should never be lost to mind by one in attendance on this type of infection. Relatively speaking, infections about the mouth are seldom associated with cellulitis, though mild adenitis of the various salivary glands is not rare. For some unaccountable reason, swelling of the column of the neck is viewed by many medical men with complacence, whether or not associated with frank oral infection, whereas it is really often an early and valuable sign of a serious and even fatal disorder. The cause may be obscure, but the condition is none the less worthy of the greatest consideration. I may be a medical pessimist, but I feel profoundly disturbed when I see a case of oropharyngeal infection complicated by a cellulitis of the neck, especially when edema of the glottis is present, as it always is sooner or later. My feeling is due, perhaps, to the unfortunate circumstance that I seldom see them early enough for the fatal consequences to be aborted, most of them coming to me in consultation when the process is far advanced.

I feel confident that there are frequently early symptoms whose recognition would have served to prevent death by suggesting preventive treatment. Such cases are those beginning with a deep-seated peritonsillar abscess, an improperly extracted carious tooth,[5] or the stirring into activity of a latent chronic follicular tonsil infection; in fact, I have seen a cellulitis and the whole train of symptoms precipitated by every one of these causes. When the pus of a peritonsillar abscess is not evacuated after several careful attempts, the danger of the infection penetrating deeply along the planes of fascia and even into the mediastinum is real and ever present, and delay waiting for it to break through one of the old incisions is a serious responsibility and a grave error of surgical judgment. I myself, after a wait of two or three days, have not hesitated to remove the tonsil in order to provide adequate drainage, which at times has required probing below the capsule to secure this end. This procedure needs no defense other than the statement that it is done to save life when death is imminent, and the chief objection to its employment is one of tradition and precedent, to which most of us in the medical profession are slaves. The danger of removing an acutely inflamed tonsil is much less than allowing the pus about it to gravitate into the deep cervical planes or mediastinum, or cause a septicemia ending in a dilatation of the heart. This last event I have seen three times in consultation, and I am moderately certain that an early operation such as I have described would have prevented death in all three cases.

It is well known that the streptococcus can lodge in the glottis without pausing to establish lodgement higher up in the respiratory tract, and may show no evidence of its presence before the appearance of edema of the glottis and cervical cellulitis.

CASE 1.—Mrs. R., a heretofore apparently healthy woman, aged 45, was seen by me in consultation at noon, at which time there was a collar of induration at the level of the thyroid. There was nothing inflammatory in the nose or throat; the tonsils were mere atrophied remains, and the teeth seemingly perfectly healthy. A week before this, the patient had had what was supposed to be a slight influenza, from which she seemed to recover in four or five days. The cellulitis and embarrassed breathing had existed only a few hours, and the stridor was found to be due to edema of the base of the tongue and one arytenoid. Her respiration was becoming increasingly difficult and her pulse intermittent, so a rapid tracheotomy was done and the relief of the difficult breathing was immediate. However, the heart action rapidly grew worse, and she soon became unconscious and died in twelve hours after the appearance of the cellulitis. The manner of her death was rather typical of these cases: cardiac dilatation and sudden onset, associated with cellulitis and edema of the larynx.

CASE 2.—Mrs. A., aged 50, presented a condition almost identical with that of Patient 1, the only difference being the presence of dyspnea and aphonia. There was edema of the whole glottis, and cellulitis extending from the lower edge of the jaw to within an inch of the clavicle. Regarding her as being on the point of dying, I rejected suggestions of iced epinephrin and intubation as being totally inadequate and mere temporizing. My urgent recommendation of tracheotomy was not accepted, but would probably not have helped anyway. She died from cardiac dilatation five hours later, having been unconscious for two hours before death.

CASE 3.—Mrs. J. had been critically ill with massive pneumonia for six days. I was called in consultation to explain sudden swelling of the nose, obstruction of nasal breathing and loss of voice. She proved to have facial erysipelas and edema of the glottis, with cellulitis of one side of the neck. Nothing could be done here, of course, other than ice exter-

* Read before the Section on Laryngology, Otology and Rhinology at the Seventy-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., May, 1925.

1. Kirkland: Inquiry Into the Present State of Medical Surgery, London **2**: 158, 1786.
2. Wells: Tr. Soc. Improvement of Medical and Chirurgical Knowledge **3**: 360, 1809.
3. Jacques: Ann. d. mal. de l'oreille et du larynx **35**: No. 10, 1909.
4. Atzrott, G.: Zwei Fälle von Angina Ludwigii, Berlin, Feb. 16, 1912 (a full treatise).
5. Guerini, V.: Dental Brief **2**: 28, 1906.

nally and steam inhalation. Death was inevitable, and she lived only two days longer. The full blown erysipelas in this case is very interesting, as these cases are all of an erysipelas nature, the course, infecting organism and progress being characteristic of this disease. Here, of course, the source of the streptococcus was the lung, the secretions from this part being rich in streptococci.

CASE 4.—B. B., aged 38, colored, a children's nurse, presented an illustration again of the ability of the streptococcus to strike low down in the throat without any apparent previous residence above, as all carious teeth and the tonsils had been removed two years before. However, this patient had been living in a house that had been visited by a scourge of the hemolytic streptococcus and certainly picked up her infection from nursing one of the children, who had a fulminating infection of the ethmoid. This particular case has been reported before.[6] With a prodrome of malaise and hoarseness, the patient came down with a malignant infection of the glottis, associated with such extensive edema of the epiglottis as to prevent inspection below that region. Cellulitis was marked from the first and was very extensive. The temperature touched 104 F., but routine treatment in twenty-four hours reduced the edema and discomfort markedly. The temperature dropped to 100 F. in thirty-six hours. However, at 4 o'clock in the morning of the third day I was called with the report that she was having great difficulty in breathing. As her heart action seemed fairly good, the dyspnea was attributed to tracheal pressure, and a tracheotomy seemed to afford relief to the respiratory embarrassment. However, she soon became unconscious and died in five hours from acute dilatation of the heart, which showed fatty degeneration.

This concludes the series of fatal cases, in none of which could death have been averted after the time at which I saw the patients. There follow seven cases in which death was certainly imminent, but was prevented, in my opinion, by the measures adopted for relief of the basic condition.

CASE 5.—Miss G., a healthy girl, aged 20 years, had had recurrent sore throat. There was a peritonsillar abscess when I first saw her. The temperature was 100.2 F. and the usual symptoms were present, but edema of the soft palate was especially marked. The jaws opened readily. Incision at the usual place released no pus, nor did careful and deep probing. The other tonsil showed follicular disease, but no acute inflammation. A gauze wick was inserted, ice was applied externally, and a hot gargle was given. Reopening and probing did no good the next day. Cellulitis was seen on the third day. This had increased on the fourth day and fixation of the jaws was found. The temperature was 101.2 F.; swallowing was difficult owing to a swelling below the tongue. As the condition was deemed serious, the patient was taken to the hospital and etherized. The tonsil was removed. A grooved director driven beneath the tonsil capsule in the middle third released pus in considerable amount. A gauze drain was inserted. While the patient was under the anesthetic, I was able to see that the edema had invaded the false cords and the epiglottis. Her temperature rose rapidly that night to 102.2 F., but later fell and pursued a mildly septic course for three days. The boardlike hardness of the neck was a week in disappearing, and the laryngeal edema also. I believe that nothing but a tonsillectomy could have saved this patient, in that it opened the exit for the pus, which was gradually making its way toward the mediastinum and had already caused incipient septicemia.

CASE 6.—Mrs. S., an undernourished woman, aged 55, had had repeated laryngitis and loss of the voice in the past five years, with occasional sore throat. No inflammation was seen about the oropharynx, but there was beginning edema of the epiglottis and cellulitis. Aphonia, slight dyspnea and cough were present. Routine treatment did not prevent the spread of the edema to the arytenoids for the next six hours, but purgation and continued treatment seemed in the next twelve hours to arrest the process. The cause of this condition was apparently deeply buried and infected tonsils.

CASE 7.—A sensible, married woman, aged 45, had had several attacks of quinsy. From past experience she had made her own diagnosis, but this time had some difficulty in breathing that rather alarmed her. This was found to be due to edema of the base of the tongue and pressure on the trachea by the brawny swelling in the submaxillary region. While the swelling was easily made out above the tonsil, incision there gave vent to practically no pus; however, routine treatment caused relief from the respiratory trouble in twenty-four hours, though painful deglutition and otalgia persisted for two days. The source of the infection was, of course, the tonsils.

CASE 8.—Mrs. E., aged 38, had had the tonsils removed eight years before, a small piece remaining in each supratonsillar region, which had caused a peritonsillar abscess several times. She refused removal, but accepted the advice of a dentist and had radium applied four times. The tonsil remains were much diminished thereby, but sealed off by fibrous bands a blind abscess, which was thus forced into the circulation. A multiple arthritis developed and myocarditis. At this stage she returned to me, too late, of course, to prevent the heart damage, with cervical cellulitis, pain in all the great joints and a heart that was incapable of withstanding so little strain as that necessitated by climbing stairs. While removal was a desperate chance, I felt that it might prevent an extension of the infectious process, but it proved to be one of the most formidable procedures that I had ever attempted, owing to the dense fibrous bands caused by the radium, and obliteration of all the normal planes of cleavage. The local condition was much improved and the heart condition has not advanced, but she will be an invalid for the rest of her life, entirely as the result, in my opinion, of the injudicious use of radium instead of removal of the diseased tissue in toto. She will die ultimately from a dilatation, in all probability, as she has apparently escaped any vegetative disease of the heart valves.

CASE 9.—Dr. T., who had had recurrent tonsillitis, was seen by me in consultation with a bilateral peritonsillar abscess of three days' standing which had been incised several times without any relief. At this time there was definite bilateral cellulitis, and fixation of the jaws preventing any inspection of the throat, stridor, and a temperature of 101 F. Under ether one side was deeply incised, and after probing a gush of yellow pus followed; at this moment the patient ceased to breathe, and the attending physician handed me a scalpel with which to do an emergency tracheotomy. However, believing it to be a respiratory spasm, I persisted in artificial respiration and then proceeded to open the other side, which yielded even more pus. A wick was put in place and routine treatment instituted. In twelve hours all pain ceased, but it required four days for the laryngeal edema to disappear; in fact, it was really a week before the larynx was normal.

CASE 10.—Mrs. J., who had never been sick in her life before, seen in consultation, had had an attack of frontomaxillary infection two months before, treated with autogenous vaccine (pneumococcus). Four days before I saw her she had been treated for a mild sore throat by wiping out the crypts with 2 per cent. mercurochrome-220 soluble, and the next day came down with a severe laryngitis and painful deglutition. The second day the neck swelled and there appeared a swelling beneath the tongue, far forward. I suggested the routine treatment as outlined in these cases, but the process was hardly affected at all, and the pain in the neck became intolerable. The cellulitis had now become bilateral and of extraordinary hardness. The temperature was 99.2 F. The third day an edematous spot was made out in the lower part of the cellulitis area which gave pus on deep incision (streptococcus). The edema of the glottic region began the first day I saw her and took the form of a soft, pedunculated, horizontal mass of edematous tissue occupying the space between the base of the tongue and the epiglottis. The fourth day it extended to the left arytenoid and, fortunately, made no further advance, though it clung there for five days without any sign of

6. Dabney, Virginius: A Scourge of the Hemolytic Streptococcus, M. J. & Rec. **119**: 587 (June 18) 1924 ("Second Epidemic," Case 11).

diminution. In fact, the persistence of this condition kept us from feeling safe till it began to leave. The swelling beneath the tongue, the classical symptom of Ludwig's angina, was the last local sign to abate, being a week after the incision of the abscess. Without doubt, the treatment of the tonsil, while perfectly legitimate, was the cause of the whole trouble. A latent tonsillar infection often flares up into malignant activity when so disturbed. I have since removed the tonsils in this case and found them thoroughly diseased and streaked with fibrous tissue, a proof of their having been the site of frequent inflammatory disease.

COMMENT

The lesson I have learned from these cases, and which I believe justifies this report, is that a swelling of the neck associated with a respiratory infection is probably a grave disorder and is to be treated with vigilant and immediate care. The cause is generally to be found if careful search is made, and its removal is generally possible, which, if done early, will reduce a mortality from about 75 per cent. to about 2 per cent. I am a firm believer in these cases of the external application of ice and the inhalation of steam impregnated with some medicament such as the compound tincture of benzoin, saline purgation and the use of morphin for rest. The last is not the least; it is most important. All my own cases are so treated and it is what I mean by "routine treatment."

Cellulitis of the neck is Nature's urgent warning that the barriers against respiratory infection have broken down and constitute a cry for assistance which every thoughtful, observant attendant will heed with immediate respect and thorough treatment. It must not be forgotten that dental caries has often caused authentic cases of Ludwig's angina, and extraction of such teeth has resulted in resolution of the septic process. In fact, Ludwig reports such cases himself, without any other treatment. In only one of these cases did the medical attendant notice or attach any importance to the cellulitis, and my prognosis of death stamped me in two of the fatal cases as an alarmist.

CONCLUSION

The erysipelas-like behavior of these cases is striking, as well as the fact, in my own cases at least, that the streptococcus was causative. Moreover, in scrutinizing this element in all the literature that I personally examined, this organism appeared always to be present, whether causative or not. All my cases showed albuminuria and edema of the glottic region and, later or earlier, cellulitis. So far as could be determined, the edema was not due to any cardiac or renal disease, primarily, in any of these cases, nor was hysteria an element in any of them. The invariable presence of edema of the glottis or base of the tongue, easily understood from the proximity of the infection, and the obstruction of the circulation from pressure in a narrow, confined zone, is worth recording in order to emphasize one of the several elements of danger in this disease. Moreover, the slowness of subsidence of the edema and the still greater slowness of the cellulitis and denitis to disappear are, again, noteworthy characteristics. Incision through the neck into the cervical abscess when this exists is, of course, entirely justifiable. Unfortunately, however, when the necessity for this becomes apparent either the patient is too septic or the myocarditis too far advanced to permit a successful issue by operation. As has been shown in the fatal cases nearly all the deaths result from cardiac dilatation.

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THE POSSIBLE MEANS OF PREVENTING DEEP CERVICAL ABSCESS

FOLLOWING THE REMOVAL OF TONSILS UNDER LOCAL ANESTHESIA *

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This is not intended to be a discussion of the technic of tonsillectomy. Any method which has for its object the complete removal of the tonsils and which accomplishes this object without the removal of other than tonsillar tissue, and with the minimum amount of trauma, may be said to be satisfactory. Just as the question of method can be said to be settled, so the question as to whether the tonsils shall be removed under local or general anesthesia can be said to be settled everywhere, except in Boston. We may then regard the advisability of the removal of the tonsils under local anesthesia, in certain selected cases, as an accepted fact.

Among complications or sequelae of the removal of the tonsils, whether under local or general anesthesia, may be mentioned, first of all, lung abscess and, secondly, deep cervical abscess. While the latter is less serious than the former, it is certainly a complication to be avoided if possible. The occurrence of two cases of deep cervical abscess, in a fairly large series of cases, following operations under local anesthesia, whereas there were no such misfortunes in an even larger series under general anesthesia, naturally raised the question whether there might be something peculiar to the one method and not used in the other which might be responsible. Suspicion pointed to the method of injection of the procain solution and the possibility of carrying infection by means of such injection from the tonsil itself into the deeper structures surrounding the capsule. A method was accordingly devised by which the possibility of the needle's transfixing any tonsillar tissue during the infiltration could be definitely excluded. Since this method was introduced there have been no cases of deep cervical abscess, either in my own experience or in that of my associates in our clinic at Lakeside Hospital.

The method of producing local anesthesia will accordingly be given in considerable detail, on the supposition that a faulty method for the production of this anesthesia is responsible for these unfortunate cases.

A preliminary dose of morphin, or codein is administered one hour before the operation. In many cases this may not be necessary. Certainly, however, in nervous patients it acts as a sedative and nervous depressant and decreases the apprehension with which many patients enter the operating room.

Before the infiltration of the procain solution, the tonsils and pillars, as well as the soft palate and pharyngeal wall, are painted lightly with a saturated solution of cocain in epinephrin. This produces an anemia to a greater or less degree, together with a superficial anesthesia. Above all, it abolishes the reflexes in most cases. It is well to wait one or two minutes following the last application of cocain before the infiltration is begun.

This infiltration is accomplished by means of a 2 c.c. record syringe, with a straight needle and the familiar 0.5 per cent. procain solution, to the dram of which 1 minim (0.06 c.c.) of epinephrin has been added. The infiltration anesthesia may be divided into the superficial

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and deep stages, though there is some question whether the superficial anesthesia is absolutely necessary. In producing the superficial anesthesia, the needle is introduced in three places around each tonsil, care being taken to see that it is introduced only so far that the eye is buried beneath the surface. If the injection is too shallow or the eye of the needle is only partly buried, the fluid will return into the patient's mouth; if too deep, it will be seen to emerge from behind the pillar or even from the tonsil itself; while if in the proper position there will occur an edema or ballooning of the pillar, similar to that following the injection of procain into the skin. The three points for the superficial injections are the anterior pillar, just external to the margin and immediately above and below the middle third of the tonsil. The third injection is made into the posterior pillar immediately behind the upper pole of the tonsil. In the foregoing procedures it will be seen that the tonsillar tissue has in no case been entered or encroached on by the point of the needle.

Superficial anesthesia is almost immediately complete, and the deep anesthesia may be begun. The patient depresses his own tongue with the tongue depressor. This has the double advantage of eliminating an assistant and, in addition, serves in part to divert the patient's attention from the operation, in that it gives him something definite to do. In other words, the patient acts as first assistant at his own operation. The tonsil is now siezed by Tydings or any other suitable forceps, and drawn firmly but gently inward and forward. As a result a sulcus, often of considerable depth, will be developed immediately external to the tonsil. This sulcus indicates definitely the outer limit of the tonsil and is the only method which, in my experience, will show absolutely how far the tonsil extends. Often considerable surprise will be experienced, for a tonsil that appears small will be found to extend deeply into the tonsillar fossa, while an apparently large tonsil will lie quite superficially. The needle is now introduced to a depth of 1 or 2 cm., when on entering the loose areolar tissue the sensation of entering a dead space will be experienced.

Deep infiltration is made in two places, well toward the lower pole and again at a point about opposite the middle of the tonsil. From 1 to 2 c.c. of solution is injected at each point. Anesthesia, as well as anemia, is complete in one or two minutes, and a painless, and often times bloodless, operation may now be performed.

CONCLUSIONS

1. The occurrence of deep cervical abscess following operations under local rather than under general anesthesia would point to the method of producing the anesthesia as being the probable cause.

2. Although susceptible of no definite proof, the transfixing of tonsillar tissue by the needle and the consequent transmitting of infectious material into the deep structures of the neck seems the most likely cause of deep cervical abscess.

3. Since the adoption of the method described, no cases of deep cervical abscess have occurred.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. DABNEY AND CHAMBERLIN

DR. OTTO GLOGAU, New York: Dr. Dabney correctly called attention to the danger of this infection that starts in the nose and throat and descends into the neck and mediastinum. Too many are given up, and death is caused by septicemia and mediastinitis. As long as there is a breath of life, the external method described by me may save the patient. By a large incision in front of the sternocleidomastoid, the vascular sheath is exposed; and from this route the pus may be reached at any level of the retropharyngeal, retrolaryngeal and retro-esophageal space into which it descended, and the mediastinum may be drained if infected or sealed for protection. A few weeks ago I operated on a critically ill patient whose tonsils had been removed under local anesthesia. Secondary infection with descending abscess and phlegmon of the neck followed. A general surgeon had incised behind the sternocleidomastoid without relief. I exposed the vascular sheath in front of the muscle and, introducing and spreading forceps beneath the digastric tendon into the direction of the peritonsillar space, evacuated a large quantity of pus. Tonsillectomy to probe for the pus is a dangerous procedure. One who saw the jugular vein extended often to the size of a bulb would be afraid to work in the dark. Instead of waiting two or three days before the tonsils are removed, one should rather resort immediately to the external operation and prevent mediastinitis. As to Dr. Chamberlin's paper, any improvement in our methods is welcome. However, infiltration round the tonsils loosens the tissues and prepares for the millions of germs always present in this neighborhood the possibility of forming an abscess. I prefer general anesthesia. Swelling of the neck, secondary to an infection of the nose and throat, is always a dangerous signal. We should not waste any time in waiting but resort immediately to the life-saving external operation. But even in cases considered to be beyond help the patient should be given a possible chance by resorting to this logical way of reaching and draining the pus. The operation should be performed only by an experienced otolaryngologist who masters the anatomy and pathology of this region. This gospel should be spread among general practitioners and general surgeons.

DR. GEORGE F. KEIPER, Lafayette, Ind.: In the study of abscesses of the neck, it is wise for us to understand something of the embryology and anatomy of the mediastinum, and this is a very nice way to visualize it. Embryologically, the heart and other organs originate in the neck and are projected into the chest. We will consider this representing the membrane enclosing the organs as they are projected into the chest. Not all anatomists agree that the lungs are a part of the mediastinum. The mediastinum extends from the base of the skull into the thorax itself, and any abscess of the neck on that account is really a mediastinal abscess and is potent for a great deal of harm not only in the neck but also within the thorax. Dr. Glogau brought out the technic of Marschig. It was hard for one to find the anterior border of the sternocleidomastoid because of the intense swelling in the neck. The incision must be placed well forward and made from the tip of the mastoid to the sternum. We proceed below and find the vascular sheath, and then we lay aside all knives and put in a piece of sterile gauze. That walls off the anterior column of the mediastinum. It is the only thing to do. Next we find the omohyoid muscle, which we cut, and we go inward and if necessary wall it off with sterile gauze. This is the posterior column of the mediastinum. Then with the finger we go to the vertebral column, and very often the abscess will be found there and can be evacuated. If I read Marschig aright, he depends on gauze drainage. In this I would utter a warning. When there is cervical abscess it is much better to use a large rubber tube. Then we shall be sure we have drainage. In the diagnosis of these cases a large esophageal speculum of Jackson is a very good thing to locate the abscess. With reference to Dr. Chamberlin's paper, I have had practically no experience with this method, but I can see that if we consider the anatomy of the neck in the region of the tonsil, what we are doing with an injection is practically to wall off this peritonsillar space from all the structures beneath. In other words, by so doing we prevent anything from going down in the mediastinum itself. It is apparently a very valuable procedure and will no doubt stand us well in hand in preventing abscess of the neck following our tonsillectomies.

DR. ABRAHAM ZINGHER, New York: I should like to draw attention to diphtheria as a secondary complication following tonsillectomy. It is especially dangerous, as the membrane

appearing at the site of the tonsillar fossae after removal of the tonsils resembles so closely a diphtheritic membrane. The disease diphtheria is likely to be overlooked until it is too late. One such case came to my attention recently. The child had been operated on seven days previously and the tonsils had been removed. Examination of the fauces showed a membrane spreading over both tonsillar fossae, over the pillars, soft palate and the entire posterior pharyngeal wall. I gave the patient 10,000 units of antitoxin without waiting for the results of the throat culture, which subsequently proved positive and virulent. Five weeks later the child developed a palatal paralysis, from which he recovered. A delay of twenty-four hours before injecting the antitoxin in the patient would have probably had serious consequences. There were two fatal cases in the Willard Parker Hospital during the last two years, children who had been operated on in other hospitals by tonsillectomy and in whom diphtheria developed. The condition was not recognized in time for a sufficiently prompt administration of antitoxin to save the children's lives. It is strongly advisable, therefore, to take, as a routine, nose and throat cultures from patients in whom these structures are to be operated on, and if the cultures are positive for virulent diphtheria bacilli to inject a prophylactic dose of 1,500 units of diphtheria antitoxin. This is necessary unless the patients have been previously tested with the Schick test and show a negative reaction, or have been immunized successfully with toxin-antitoxin and give a negative Schick retest. This simple precaution may avoid a catastrophe in one's practice and save one's reputation in one's own community.

DR. LEON E. WHITE, Boston: I suppose the reason we do not use more local anesthesia in Boston is that one of our prominent men lost one of his confrères some years ago following a local anesthesia. We have been rather timid about using it since. We feel that we have some ground for our method. Whenever one injects anything capable of producing serious disturbance of the heart and possibly death, it is in the system and one cannot get it out. For that reason we use ether. A personal experience may not be amiss. I removed the tonsils from a man with some cardiac disease and everything went very nicely. I thought that if I could do that well I could use local anesthesia thereafter. Shortly after I had a woman from whom I removed tonsils under local anesthesia, and she almost bled to death; I had to take her to the hospital and ligate the vessels. I feel that I would prefer to do what is necessary while the patient is under the anesthetic. Of course, we do not get these abscesses because we do not inject anything to produce them.

DR. C. F. YERGER, Chicago: In looking over the statistics of the Cook County Hospital, I found that during the last ten years sixty cases had been classified as Ludwig's angina; in analyzing these cases I found that only twenty of them could be considered as bona fide cases of Ludwig's angina. Most of the cases thus excluded were cervical cellulitis, abscess, or adenitis and osteoperiostitis of the jaw. We should be more circumspect in making a diagnosis of Ludwig's angina. In the latter, we should observe primarily an induration in the submaxillary region of the neck or a submaxillary cellulitis, and, secondly, a sublingual cellulitis which causes the floor of the mouth and the tongue to be pushed upward and is associated with a trismus. In pharyngeal phlegmon, as that associated with retropharyngeal or peritonsillar abscess, we may have involvement of the laryngeal region by extension downward, and trismus may be present as a result of the involvement of the muscles of the floor of the mouth, but submaxillary induration of the neck is absent. Therefore these cases should not be classified as Ludwig's angina. I wish to emphasize the necessity of using only local anesthesia in operations for Ludwig's angina; we should never administer a general anesthetic to a patient that is dyspneic; this should be one of the golden rules of laryngology. We do not know the exact pathology of Ludwig's angina. In 1836, Ludwig stated that the pathology was that of a gangrenous induration of the neck. Since Ludwig's day our knowledge of the pathology of this condition has not advanced very much, nor will it until we follow the fatal cases to the necropsy room and acquire more precise pathologic data. The cause of death in these cases is another question that is not settled and needs elucidation. Dr. Dabney stated that in his cases it was due to cardiac dilatation. We have observed that in most of the cases in the hospital, the cause of death was edema of the larynx, bronchial pneumonia, or mediastinitis.

DR. W. W. CARTER, New York: The discussion of this subject has been so comprehensive that I will just call attention to one or two practical points that I have found of value in the course of my experience. Dr. Keiper has very graphically called our attention to the manner in which the tissues go down into the mediastinum. That is a point that every man dealing with this subject should remember because there is a tendency for the pus to gravitate into the mediastinum. For that reason I want to call attention to the fact that postural treatment (head and shoulders lowered) in these cases is of great importance. The cases that have been handled successfully have been those in which the head has been kept lowered as much as possible. I think also that this is anticipating abscess of the mediastinum before the abscess really has occurred. I think Dr. Glogau's point of making an incision on the outside should be followed in many cases, but I do not agree with him that the incision should be made at the side of the larynx alone. It should be made also at the base of the tongue in order to diminish the edema of the glottis, because nearly all of these patients have edema of the glottis and in some cases tracheotomy is absolutely necessary. In three of the cases I have had in the past two years, tracheotomy had to be done. Another thing is heat. I consider this agent of great value and prefer it to cold, as recommended by Dr. Dabney. I believe we do not realize the great advantage of heat in treatment of infections of this kind. I prefer tube drainage, as gauze quickly becomes clogged with pus and does not serve the purpose. I use in these cases a strong solution of potassium permanganate.

DR. SIDNEY ISRAEL, Houston, Texas: With reference to Dr. Dabney's view and the procedure he advocates in regard to infected tonsils, I cannot subscribe to the surgical judgment that would advocate the removing of a tonsil in the presence of an acute inflammation, whether abscess is present or not. I cannot feel that this is the wise course to pursue, and think that if this impression should get out it would be extremely dangerous from the standpoint of the patient. I feel as the general surgeons do regarding a suppurative condition of the appendix. No surgeon with sound judgment would attempt to manipulate the bowel and break away the protective area which Nature has provided in the presence of a suppurative appendix; he generally drains freely and allows Nature to take care of it, and on a later date removes the appendix. The same attitude should be taken in regard to the tonsils. With reference to Dr. Chamberlin's technic, I have employed that method of producing a sulcus outside the tonsil for the last two years. I have no infection, and accomplish the same procedure by using, instead of forceps, a corkscrew holder, making traction, but not squeezing the tonsil, so as not to distribute infection into the blood stream by squeezing or with the syringe. Knowledge of the anatomy of the tonsil is important. I am not yet convinced that it is the local anesthesia that produces postoperative abscesses or cellulitis. We can well understand that the presence of an infected or contaminated needle or solution would be liable to bring about infection. In our experience we have never had abscess following tonsillectomy. I believe that the type of operation probably has considerable influence in the infection taking place after operation. By the type of operation, I mean, regardless of the instrument employed, the amount of muscle tissue removed, and the amount of injury in the area outside of the tonsil. Certainly the more muscle tissue removed and the more trauma, the more liability to infection. The toilet of the operated field is important. We use mercurochrome-220 soluble before the tonsil is injected, and either mercurochrome or some other antiseptic after the tonsil is removed. That Dr. Charberlin did not note any abscesses in patients that were operated on under general anesthesia might be due

to the fact that epinephrin was not used as in the cases wherein local anesthesia was employed, and the free bleeding customary in patients operated on under general anesthesia was not present to minimize infection.

DR. CHARLES W. RICHARDSON, Washington, D. C.: This has been a most fruitful discussion of two very important conditions, but there is one type of infection in this region, most disastrous in its character, which has not even been mentioned. It results almost entirely from injury or trauma in connection with the extraction of teeth, and is the gas bacillus or the infection by the bacillus of Welch in these tissues. I do not know that many have seen this. I have seen two cases and they present many of the evidences of Ludwig's angina, except that there is a peculiar feeling in the affected area of the neck, as far as the inflammation extends, of crackling due to the gas in the tissue. If the tooth cavity is well opened, culture smears will yield the bacillus. Usually these cases are rapidly fatal, and it is rarely except at postmortem that one is able to obtain a positive diagnosis from culture or from smear. It is usually very fulminating in character, and it is only from the culture of the tissue extracted or from the peculiar feeling of the tissue that one can make the diagnosis.

DR. OSCAR WILKINSON, Washington, D. C.: I wish to congratulate Dr. Chamberlin on his excellent operation which he has described, an operation which I described practically identical in every detail, two years ago, and of which I will be very glad to send him a reprint. The only difference is that I made three injections exterior to the tonsil instead of two. With reference to the prevention of abscess in the neck, I think it is important to prepare our patients and to select them. I never touch a tonsil if there is an acute infection in the throat, and I never take a tonsil out until three weeks after an acute tonsillitis. I think that if these rules were followed we would avoid a good many of our postoperative unpleasant effects. Dr. Israel mentioned the fact that the fluid injected should certainly be sterile; that is good. He also mentioned unnecessary trauma. I believe that unnecessary trauma at the time of operation has more to do with it than the local anesthesia; also the immediate after-care of the patient. We invariably paint the pillars of the tonsil beforehand with compound solution of iodin, and when I am through I paint the cavity with 50 per cent. compound solution of iodin.

DR. VIRGINIUS DABNEY, Washington, D. C.: Dr. Glogau's impassioned indictment of me seems based on his belief that my paper was on Ludwig's angina, whereas the title itself shows otherwise. I thought I had made it especially plain by my references to Ludwig. However, if I failed I must accept responsibility. In speaking vehemently of his operation for draining a deep cervical abscess of the neck, he denounces me for conservatism; whereas, my paper was not concerned with cutting down on free pus. When he says that he would cut down on a neck which had showed nothing else but swelling for so short a time as two hours, my opinion of the procedure is the same as that which he holds for my procedure. As for removing a tonsil under the conditions described, I stand by my original statement.

DR. WILLIAM B. CHAMBERLIN, Cleveland: The accident to which Dr. White alluded I am familiar with. Accidents occur of course after either local or general anesthesia. I think it is unfortunate that this accident should have occurred in the early experience with local anesthesia. If we look up the records we will probably find that quite as many, if not more, accidents have occurred with the use of general anesthesia. There will be bleeding after a local, as well as after a general, anesthesia, and it is no more difficult to control. Dr. Keiper brought out an interesting point which I had not thought of, and that is the probable protecting influence of the injection into the peritonsillar tissue. Dr. Israel spoke of forceps. Of course it makes no difference what type of forceps one uses. It is axiomatic, however, that trauma should be reduced to a minimum. This point I mentioned in my paper. I apologize to Dr. Wilkinson for failing to give credit to him. I wish to assure him, however, that we are accustomed to the use of sterile solutions in our clinic at Lakeside Hospital.

ALTERNATING CONVERGENT SQUINT

REPORT OF TWO CASES WITH ACQUIRED STEREOSCOPIC VISION AFTER OPERATION *

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The literature contains very little concerning the management of this type of strabismus. There is little unanimity of opinion among ophthalmologists concerning the best way to treat alternating squint, although it is a question we are often called on to decide. The discussion here is limited to that type of case in which the vision is normal and equal in the two eyes, or practically so, and in which the patient fixes with either eye at will while the other eye converges.

Worth divides this kind of squint into two classes, accidental alternating and essential alternating. In the former the refractive error is equal in the two eyes, and the squint, if untreated, tends to become unilateral. In the latter there is little or no refractive error, and the visual acuity in each eye is perfect. These two classes comprise about 15 per cent. of the cases, according to Worth's statistics. My office records show that I have examined eighty cases of comitant convergent squint in the last four years. Sixty-four of these were monocular and sixteen (20 per cent.) were alternating. Of the alternating cases, three were classed as essential (3.75 per cent.), nine were classed as accidental (11.25 per cent.), and four were classed as type undetermined (5 per cent). It is often difficult to classify these cases unless they can be carefully studied over a long period of time, and this is sometimes impossible.

Javal [1] has probably studied alternating squint more carefully and has written more extensively concerning it than any other ophthalmologist. He states that:

> The prospect of obtaining perfect binocular vision makes the cure of alternating strabismus particularly desirable. Unhappily, the enterprise is generally difficult, for the fact of the permanence of the deviation is proof of its long standing, and the amount of time necessary to reestablish binocular vision is in proportion to the length of time it has been lost. Further, it is among these patients that there is the greatest aversion to binocular vision, and false projection. . . . Although the result may be as nearly perfect as possible, if the patient has not obtained fusion of images, he will have the most insupportable of diplopias, to escape which he will return to convergent squinting; for although the new position is almost correct, neutralization is not established at once.

He reports ten cases in which he operated, with eight successes and two failures, and he attributes the latter to neglect of the patients in following out the exercises prescribed after operation. Worth [2] says:

> Essentially alternating squints are, fortunately, not very common. The treatment consists in optical correction of any ametropia which may be present, followed in the majority of cases by operation. Fusion training is impossible, as there is a total congenital absence of the faculty of acquiring fusion.

Bishop Harman [3] says:

> In alternating types there is no value from fusion training, and operation may be done early.

Dr. R. J. Coulter,[4] in 1907, reported five cases, the oldest patient being a girl of 18, in all of which binocular

* Read before the Section on Ophthalmology at the Seventy-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., May, 1925.

1. Javal, E.: Manuel du strabisme, pp. 219-225.
2. Worth, Claud: Squint, Ed. 5, p. 118.
3. Harman, Bishop: Ophthalmic Year Book, 1916, p. 72.
4. Coulter, R. J.: Ophthalmoscope 5: 625-628, 1907.

vision developed following operation. He expressed the belief that the most suitable time for operation is between the ages of 12 and 16.

It was decided to attempt to get opinions from various ophthalmologists, as so few have published their experiences with alternating squint, and my own experience was limited. Accordingly, the following questionnaire was mailed to seventy American ophthalmologists. Twenty-six replies were received and are here summarized:

Questions	*Summary of Replies*
1. Have you operated in cases of true alternating squint, either convergent or divergent, with practically equal visual acuity in the two eyes?	1. Yes, 23. No, 3.
2. If so, in how many cases?	2. Total of 206 (estimated).
3. What degree of binocular vision, if any, existed before operation, using Worth's classification? (1) Simultaneous macular perception. (2) True fusion with some amplitude. (3) Sense of perspective.	3. Few answered this.
4. What was the age of the patients?	4. From 3 to 50 years.
5. (*a*) Did diplopia follow the operation?	5. (*a*) Yes, 12. No, 8.
(*b*) If so, how long did it last?	(*b*) Few weeks, to persistent.
(*c*) Was it extremely annoying to the patient?	(*c*) Yes, 9. No, 2.
(*d*) Was it of the usual type or paradoxical?	(*d*) Usual, 5; paradoxical, 1; both, 1.
6. Were orthoptic exercises used either before or after operation?	6. None, 7; before, 2; after, 4; both, 2.
7. What degree of binocular vision, if any, was ultimately obtained?	7. None, 5. Many cases of true binocular single vision were reported.
8. Would you be deterred from operating in this type of case in an adult through fear of causing permanent diplopia?	8. Yes, 3. No, 23.

It was realized that to fill in this questionnaire fully would take more time for search through case records than most of the men would care to devote to it, yet it seemed the only way to obtain the desired information. One correspondent summed up the situation nicely by replying that if he had time to answer all the questions he would have time to write a paper on the subject. Nevertheless, many opinions were expressed that I consider of great value, especially as the combined experience of those who replied included a few hundred cases in which operation was performed.

The two really important questions were those regarding diplopia following operation and the ultimate results obtained in respect to binocular vision. It has been my impression that many surgeons are deterred from operating in this type of squint by fear of producing a more or less permanent diplopia. As only three of the twenty-six who replied answered this question in the affirmative, such does not seem to be the case. Experiences in the occurrence of diplopia following operation varied considerably. Eight reported none; twelve answered yes; the others left this question unanswered. Of the twelve who answered in the affirmative, the replies varied from "occasionally" to "usually," and the length of time from two weeks to permanent or at least continued intermittent diplopia. While only one case of permanent diplopia was actually recorded, one reply stated that it was "more or less continuous in many," and another that "when it came it persisted." Many correspondents expressed the opinion that diplopia was much more persistent and annoying in patients of neurotic temperament, and in one such case the surgeon was threatened with a damage suit.

In regard to orthoptic exercises, seven ophthalmologists did not use them; two, rarely; two, before operation; four, after operation, and two, both before and after. One man of large experience stated that exercises are of no value in the absence of the fusion faculty. Many factors tend to produce the variety of opinions expressed. The age of the patient, the exact state of the fusion faculty before operation, the nicety with which surgical correction is accomplished, and the type and extent of fusion training used—these all influence the end-results. The truth of the matter could best be arrived at by a number of ophthalmologists using the same technic in examination and treatment in a large number of cases.

There was perhaps more unanimity of opinion in regard to the ultimate results in respect to binocular single vision. Many replies were that a small percentage—probably not more than 10—obtained true binocular single vision. A few reported a much higher percentage, but many stated that but few patients attained this highly desirable result. I was unable to determine that those who used orthoptic exercises consistently fared better in this respect than those who did not. Many replies were to the effect that only cosmetic results were sought, because that was what the patient was interested in.

My operative experience with alternating convergent squint consists of five cases. Two of these patients I have been privileged to follow closely; one lives out of town and has not returned; two are still under observation and are undergoing fusion training. The first two cases are reported in detail because they are interesting, and I believe they refute some of the ideas commonly held and taught.

REPORT OF CASES

CASE 1.—C. L., a school girl, aged 10, consulted me, April 17, 1923, regarding a convergent, alternating squint. She was the third of six children. An older sister had a mild degree of myopia; otherwise, the family was free of eye complaints. At 4 years of age, it was noticed that the eyes were crossed, and the mother thought that the left eye converged first. An opthalmologist had prescribed glasses, which she had worn constantly, and the mother thought that the squint was slightly less with glasses on. The patient had had no illness except the usual diseases of childhood. She had never been conscious of double vision. The patient was well developed and well nourished, with a convergent, alternating squint, measuring 20 perimeter degrees for distance; 30 perimeter degrees for near; vision R. 20/20 mostly, L. 20/20 mostly, with and without correction, which was + 3.00 D. S. o. u. The degree of squint was not influenced by the glasses. She used either eye to fix with at will, apparently using the right eye for objects on the right and the left eye for objects on the left. Cycloplegic refraction showed: R. + 2.75 D. S. 20/20, L. + 2.75 D. S. ⌣ + 0.25 Cyl. ax 180, 20/20. Homonymous diplopia could readily be elicited with red glass and light. She could not fuse the simplest amblyoscope pictures.

The parents were advised that it was quite unlikely that fusion could be developed, and that a cosmetic result was the best that could be hoped for. However, they requested that fusion training be tried, and agreed to cooperate thor-

oughly. The patient could fuse, or at least put together, some of the simpler pictures with the amblyoscope by May 1, following semiweekly sessions with the instrument. She was furnished with a stereoscope equipped with a 30 degree prism base out and with Kroll's pictures. Two weeks later she could fuse all the stereoscope and amblyoscope pictures, but could not fuse colored lights. We were astonished at the rapid progress she had made thus far. She was furnished with 30 degree grab front prisms, and instructed to do bar reading twenty minutes daily. She soon mastered this form of exercise. June 12, she could fuse varicolored lights. The various exercises were continued until August 14, when it was decided that no further progress could be made. Under general anesthesia, partial tenotomy of the left internus was done by Todd's method, combined with a liberal Reese resection of the left externus. When the eyes were unbandaged on the fifth day, there seemed to be slight overcorrection. On the eleventh day, when the final sutures were removed, the eyes appeared parallel by the corneal reflex test. August 29, with the Maddox rod, there was 5 degrees esophoria, with 4 degrees left hyperphoria at 14 inches, with her correction 5 degrees exophoria for distance, 3 degrees exophoria for near, hyperphoria same as without correction. Two degree prisms were incorporated in each lens to correct the hyperphoria, and with this correction she had 8 degrees exophoria for distance and 6 degrees exophoria for near. A little later her correction was reduced to R. + 0.75 D. S. ⌒ 2 degree prism base up, L. + 0.75 D. S. ⌒ 2 degree prism base down, with which she had orthophoria for near and distance. The patient had developed diplopia immediately after the operation, but it caused her little annoyance. For several weeks she continued to see small objects double, but this gradually disappeared. Orthoptic training was continued several months. The hyperphoria disappeared, and she now has orthophoria for near and distance. She is unable to tell accurately by Hering's drop test on which side of the string an object falls. Glasses have been temporarily discarded, and she has no symptoms. This patient has recently had a severe illness necessitating an operation on the cervical glands, with no recurrence of symptoms.

This case probably belongs to the type that Worth calls accidental alternating squint, as the patient has a moderate error of refraction and has developed very good fusion power. Considering the fact that she had such a high degree of strabismus and equal vision in each eye, it seems remarkable, if Worth's dictum is true, that she developed fusion to such an extent. She may have had fusion sense early in life, and for some reason, possibly the hypermetropia, may have given it up. This, of course, can only be conjectured.

CASE 2.—J. J., a man, aged 35, an office worker, who consulted me, April 12, 1924, had had crossed eyes since early childhood. He had never had his eyes tested and had never worn glasses. He had a convergent alternating squint measuring 45 perimeter degrees for near and distance. He fixed with either eye at will, but preferred using the right. Diplopia could not be elicited, nor could he see the two pictures in the amblyoscope simultaneously. Cycloplegic refraction gave: R. + 1.50 D. S. 20/20, L. + 1.50 D. S. 20/20. Under local anesthesia a liberal resection of the left externus was done, combined with a partial tenotomy by Todd's method of the left internus. Following this operation he had 18 prism degrees of esotropia for near and twelve degrees for distance, measured by the screen test. Crossed diplopia could be elicited. Six days after the first operation, partial tenotomy of the right internus was done. Diplopia developed ten days after the last operation while the patient was putting down some figures, causing great mental confusion. At this time he had about 7 degrees right hypertropia and 14 degrees esotropia, by the screen test. The Maddox rod could not be used because of his paradoxical type of diplopia.

Intensive orthoptic exercises were begun, and he worked at them faithfully and well. His diplopia continued intermittently for several weeks, appearing especially when he was tired and for small distant objects. He can now readily fuse all the stereoscope and amblyoscope pictures, and can do bar reading uninterruptedly. He has had no spontaneous diplopia for several months, though crossed diplopia can be elicited at any time. He cannot perform Hering's drop test accurately. The right eye still deviates upward behind the screen, but with both eyes open he holds it level, and it causes him no distress.

COMMENT

It will be noted that both of these cases showed a vertical deviation after operation. I was puzzled by this for some time, until the reason became apparent after trying some experiments with a sphere and tapes attached to an elastic band, imitating as nearly as possible the pull of the lateral muscles. It can be readily demonstrated by this device that the Todd method of tenotomy will produce a vertical deviation in every case, owing to the fact that the traction is on the uncut fibers next to the eyeball, and the globe is turned in the direction in which the cut lies closest to the scleral attachment. I later found that Bishop Harman had discovered this fact and had devised a remedy, but I mention it here for the reason that it should be more generally known. Had I found this article sooner, it would have saved me considerable embarrassment, as patients are not always able to overcome this deviation.

CONCLUSIONS

Convergent alternating squint is a condition in which there is a wide divergence of opinions among ophthalmologists as to etiology and treatment.

It is a surgical condition, and one that will not be cured by glasses. One is not justified in delaying operation several years in the hope that glasses will correct the condition.

It is better to operate in childhood, because if binocular single vision is not attained, children soon learn to suppress the second image, and they are not annoyed by diplopia.

Adults may be operated on with little danger of permanent diplopia. They should be cautioned that double vision will occur and may persist for some weeks or months following the operation.

Orthoptic exercises are of great value if the patient will carry them out persistently and conscientiously under the physician's supervision. Otherwise, they are valueless. When possible, it is better to use them before and after operation, though the latter is the more important.

The opinion held by many ophthalmologists that fusion training in alternating squint is not worth while because these patients have a congenital absence of fusion sense is an error. The same may be said in regard to the theory that the fusion sense is fully developed by the end of the sixth year. This is not necessarily true, as the two cases reported demonstrate.

ABSTRACT OF DISCUSSION

DR. WALTER B. LANCASTER, Boston: The most important point brought out is the question of securing binocular vision in cases of alternating strabismus. It is one on which there has been a difference of opinion. In some cases of alternating strabismus, the fusion faculty is nil. In those cases no amount of training will develop binocular vision. But in other cases of alternating strabismus, those in which there is a latent fusion faculty, it can be developed. To understand this, it is necessary to consider the natural history of a case of strabismus. When a child begins to develop the power of squinting which to him is an advantage—he sees

easier that way—the first thing he has to do is to suppress the diplopia, and until he has learned to do that he cannot squint to advantage. If he has amblyopia in one eye, either congenital or from any cause, it becomes easier to suppress the diplopia by suppressing the image of the defective eye, and he soon acquires facility. If the eye is not amblyopic, it frequently becomes so from lack of use. Suppose he does not develop an amblyopia. If he has a squint, he must learn to suppress the diplopia. His fusion must be kept in abeyance, and if he has some fusion power at the start he must antagonize that and keep it from being exercised at all, with the result that later on he seems to have lost the power of fusion. If the patient is seen at this stage, one cannot tell whether he has latent faculty or not. The only way to settle it is by trying. Possibly the history may throw some light on that question. In Dr. Goar's first case the squint did not begin until the patient was several years old. During that period, therefore, the fusion must have been exercised. Later it became suppressed. With such a history we can assume there is a fusion power. It has been suppressed, but we can cultivate it. Similarly, in cases of monocular squint the first step is to convert them, if possible, into the alternating type. We then strive to develop binocular vision. If the parents say that the child has suffered from birth, I would not wish to imply that that proves there is no possibility of fusion. In the first place, such a report by the parents is very unreliable, and, in the second place, I do not think we have definite information on which to base such an opinion.

DR. LUTHER C. PETER, Philadelphia: Many points of interest in Dr. Goar's paper have a more or less direct relation to the state of the fusion faculty, the conditions of which are concisely grouped in Worth's classification. If a case under discussion is properly classified, some of the questions raised by Dr. Goar are easily answered. Patients that fall in the first group, possessing simultaneous macular perception with a total absence of the fusion faculty, in my experience are rarely annoyed by diplopia after operation. This group of cases does not show any tendency to improvement under fusion training either with the amblyoscope before operation, or with the amblyoscope or stereoscope after operation. Early operation is always indicated, although one need not be deterred from operating in adult life. The ability of the patients in this group to disregard the image of the nonfixing eye is probably developed to a higher degree than it is in those who possess a fusion faculty, although imperfectly developed. Patients that fall in the second and third groups of Worth's classification may have some temporary diplopia, which disappears with proper orthoptic training. In no instance has it been my misfortune to find a persistent diplopia after operation. It is probable, too, that diplopia, when present, is in part due to vertical disturbance caused by a slightly misplaced attachment when and advancement is performed. If fusion training is practiced before operation and again after the eye has been operated on, the likelihood of anything but a temporary diplopia is reduced to a minimum. Furthermore, the same training will result, in a majority of instances, in single binocular vision if the corrective procedure is performed with accuracy. In either group one can obtain a fair idea of the probability of diplopia after operation by the use of the red glass before operation. The important facts brought out in Dr. Goar's paper are: First, the necessity for a careful study of the case before operation, with reference to the state of the fusion faculty; and, second, the importance of routine orthoptic exercises before the patient is brought to the operating table, and the necessity for a renewal of the same training after the operation has been performed. In the particular type of squint referred to in this paper, if a fusion faculty is present, although imperfectly developed, the careful use of fusion training before and after operation usually is the deciding factor in the case, whether the operation is only a cosmetic one or the patient is to enjoy a single binocular vision after operation.

DR. OSCAR WILKINSON, Washington, D. C.: The explanation of the success obtained in Dr. Goar's second case can be found by going more deeply into the history of the case. It has been my observation that when we are able to secure binocular vision in these older subjects, that is, in patients over 12 years of age, as a rule these patinets are late squinters and have enjoyed binocular vision for a number of years before they began squinting. This would explain their ability to regain that function so late in life. It has been my observation that alternating squint is as easily cured as the constant monocular variety, particularly when there is a marked loss of vision, in subjects that have squinted for a number of years. As a matter of fact, the cure of all types of squint depends entirely, one might say, on the length of time the patient has squinted. All types of squint, save the congenital squint with amblyopia, are amenable to early treatment. This is particularly true of the alternating type. All types of squint that are not relieved by the use of atropin, glasses and orthoptic exercises within one year become operative cases, and it is just as much our duty to operate in these cases early as it is to operate in a case of acute glaucoma. Two years ago, I reported a method of operating in these cases by which the amount of shortening of a given muscle can be measured. With reference to essential squinters, I believe that less than 1 per cent. in those alternating cases are real essential squinters, so typically described by von Graefe and so graphically explained by Savage. It has been my observation that these patients with antipathy to binocular vision have squinted for many years, and could not in any way acquire binocular vision on account of the great degree of squint. Had they been seen early and treated properly, I believe they, too, would have acquired binocular vision. I have not yet brought myself to the point at which I can believe that Nature often falls down on her job and hooks up visual nerves so poorly as to produce an essential squinter.

DR. F. H. VERHOEFF, Boston: Such a remarkable fact as that patients as old as these may squint all their lives and still have binocular vision should be demonstrated by very conclusive evidence. In looking over the details given of these two cases, however, I cannot find anything to convince me that these patients had true binocular vision. Because the patients were taught not to suppress and thus to see the two pictures in a stereoscope simultaneously does not prove they had true binocular vision. The bar reading test does not prove that a patient has stereoscopic vision. He reads on one side of the bar with one eye and behind it with other. The only test mentioned, if properly done, that would prove that the patient had real binocular vision was the Hering test, and the author states that neither of the patients could pass this test. A simple test to show whether or not a patient has binocular fixation is the cover test, but apparently this was not tried. In 1903, I published a very simple test which, I think, is the only one yet suggested which proves with absolute certainty that a patient has stereoscopic vision. What the patient sees with this test it is impossible to see with either eye alone, and, in fact, can be seen only when there is fusion of the two images. I have been surprised to find that this principle has not even yet been embodied in any of the stereoscopic diagrams commonly used for testing patients.

DR. EVERETT L. GOAR, Houston, Texas: I do not know any way of telling whether a squinter has had fusion at one time or not, except that it might be inferred from the history. In the second case reported, the history stated only that he had squinted since early childhood. Concerning the matter of whether these patients developed binocular single vision or not, Dr. Verhoeff is more or less right. There are various grades of fusion sense, as I understand it, as there may be of any other sense. These patients did not have perfect binocular single vision, as evidenced by the fact that they could not do Hering's drop test accurately—probably the ultimate criterion of binocular single vision. It has been well established by Worth and other men that if with the amblyoscope patients can invariably tell which end of a glass is pointing toward them, they have sense of perspective. It is my belief that patients who can do bar reading properly have binocular vision. These patients lost their diplopia and developed ability to note the third dimension and nothing more than that is claimed for them. They are not concerned because they cannot do Hering's test.

RELATION OF INTRANASAL DISEASE IN THE PRODUCTION OF BRONCHIAL ASTHMA

REPORT OF CASES *

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Nasal accessory sinus disease is a very common finding in patients suffering with bronchial asthma. Because of this occurrence, many thoughtful investigators have suggested that there is an etiologic relation between disease in the paranasal sinuses and this baffling malady. There are four conceivable ways by which the symptom complex called asthma may be produced through nasal disease. Mucopurulent material may drip into the pharynx from an infected sinus and the infection gradually involve the mucous membrane of the trachea and bronchi. Mucopurulent material may be retained in a sinus and the toxic products be absorbed through the blood stream or lymphatics or both and produce allergic phenomena that may manifest themselves in asthma. The nose may be obstructed by polypi and enlarged turbinates, and the patient is compelled to breathe constantly through the mouth, and the effect of cold and dry inspired air, combined with the presence of infected material on the sensitive mucous membrane of the trachea and bronchi, might conceivably be the exciting factor in the production of bronchial asthma. Finally, a spasm of the musculature of the bronchi might be produced through nerve reflex by irritation or disease of the nasal ganglion.

Sluder,[1] in discussing the sympathetic syndrome in relation to nasal ganglion disease, makes a very plausible explanation as to the manner in which a patient suffering from an acute rhinorrhea develops symptoms which cannot be differentiated from those of bronchial asthma. The text of the rationale is as follows:

> It is generally admitted that the functions of the sympathetic nervous system among others are vasomotor and secretory. Sensory attributes have also been proved for it. Anatomically the fibers of the cervical sympathetic from the nasal ganglion pass downward by way of the vidian and carotid plexus to the cervical sympathetic and give branches to the cervical nerves and proceed finally to the lower cervical ganglion, which is in intimate connection and often fused with the first thoracic. These ganglia are anatomically in association with, or allied to, the nerves which in addition to supplying the neck also make up the brachial plexus and supply the upper extremity. Accelerator fibers for the heart and vasomotor fibers for the lung also pass through these ganglia.
>
> The anatomical and physiological problems of the autonomic nerves (sympathetic) are very complex, and a clinician may well hesitate approaching them; but it would seem that the knowledge of the present on this subject permits the thought that it is a lesion of the sympathetic elements of the nasal ganglion that explains not only these vasomotor secretory phenomena but also the pain referred into the neck, shoulders, arms, etc., the vidian neuralgia; and that these referred pains probably come to pass by virtue of the sympathetic fibers which arborize about cells (Thane, Van Gehuchten, Dogiel, Retziens) in the spinal ganglia of the nerves which make, eventually, the supply of the neck and the upper extremity. Also, the thought arises that it is the anatomical connection of accelerator fibers for the heart and vasomotor fibers for the lungs with the ganglia through which the cervical sympathetic passes (lower cervical and first thoracic) that explains some of the cases of asthma of nasal origin; and that the path of the impulses is from the nasal ganglion through vidian, upper, middle and lower cervical and first thoracic ganglia, through the last two of which pass the heart and lung fibers.

Dennis [2] reports that out of sixty patients having nasal accessory sinus disease, twenty-four had bronchiectasis and twenty-eight had had asthma; the remainder had other remote complications. In practically all cases of bronchiectasis and asthma the maxillary sinus was diseased. In all but one case, a number of sinuses were involved and the trouble was usually bilateral. In many of these cases a positive diagnosis was not made until the sinus was opened and inspected. Dr. Dennis is disappointed with the roentgen ray as an aid to diagnosis. At times the pictures were misleading. In the fifty-two cases of bronchiectasis and asthma, pus was found in the sinuses only thirteen times, while in the majority of those remaining, hyperplastic changes were observed in the mucosa. In all the cases, operations were done on one or more sinuses, and of the twenty-eight cases of asthma, nineteen were improved or temporarily improved, four not improved, and five not noted. He suggests that the patients be operated on as early and as thoroughly as possible. In this article no reference is made about the relation of allergy to asthma.

Lintz [3] deplores operations of any variety for the cure or relief of asthma. He reports that of fifty-six patients who have had one or more operations on the nose or throat, in only one instance was there relief from asthma for a period of three years; in the rest there was none at all. He believes that these patients belong to the status thymolymphaticus group and should be left alone. He is convinced that if the allergin is determined and eradicated or the patient desensitized, the indications for operative intervention will disappear.

Haseltine [4] states that "a patient cannot have bronchospasm with a previously entirely normal nose." He therefore leads one to conclude that he believes that all cases of bronchial asthma are due to disease in the nose, and he designates the ethmoid region as the area in which this disease exists.

It will readily be noticed from the opinions of the authors referred to that their deductions are based on findings which are essentially studies of this problem from a single angle and not from a broad understanding and correlation of all the possible data that one may bring to bear on this question. Most of the opinions expressed are no doubt true as far as they go, and add a great deal of food for contemplation when considered collectively.

Among 117 cases of asthma studied in my private practice in which very careful records were kept and thorough studies made, I find that in all there were thirty-one cases of disease in one or more of the paranasal sinuses. Eighteen of these were of the chronic purulent type and thirteen of the hyperplastic. In the eighteen purulent cases, eleven patients were sensitive to one or more proteins and seven were not sensitive. In the thirteen hyperplastic cases, seven patients were sensitive, five nonsensitive, and one not tested.

In all there were eighteen sensitive patients who had definite unmistakable intranasal disease. Five of these were sensitive to bacteria, and the other incidental

* From the Department of Oto-Laryngology at Beth Israel Hospital.
* Read before the Section on Laryngology, Otology and Rhinology at the Seventy-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., May, 1925.

1. Sluder, Greenfield: Headache and Eye Disorders of Nasal Origin, pp. 73, 74.
2. Dennis, F. L.: Ann. Otol., Rhinol. & Laryngol. **33**: 451 (June) 1924.
3. Lintz, W.: Ann. Surg. **79**: 917 (June) 1924.
4. Haseltine: Clin. Med., February and March, 1925.

sensitiveness that was encountered was negligible. Three were sensitive to other proteins, but this sensitiveness was found to be so mild that it could not be considered as an exciting factor in the production of the bronchial asthma. In the remaining ten cases in which sensitiveness was elicited, the allergic reactions were so pronounced that there is no room for doubt that the symptoms were produced by it. The intranasal disease was a concomitant factor which served to augment the symptoms. This group of cases will be dismissed with the statement that the allergic condition found should be treated according to conventional lines, and that the intranasal disease be as thoroughly evacuated as is consistent with good surgery, and that as a rule the results will be good unless a chronic bronchitis with peribronchial changes has already supervened, in which instance only relief can be expected.

I am firm in the belief that the bacterial and other slight protein sensitiveness elicited in the aforementioned eight cases should be disregarded. I am convinced that a slight reaction to bacteria or other protein is not a competent exciting cause for the paroxysmal seizures of bronchial asthma. I do, however, believe that basically these patients have a tendency to asthma and in their particular cases the nasal accessory sinus disease is the exciting, and their constitutional make-up the predisposing etiologic factor. This also applies to the cases in which no sensitiveness was elicited, with the exception of cases of pure reflex asthma, which are rare. The fact that sensitiveness is not found is not a good argument that it does not exist. The nonsensitive patients will therefore be considered with the eight slightly sensitive ones, making in all, twenty-one.

Accordingly, bronchial asthma from disease of the paranasal sinuses may be produced in one or two ways, or a combination of them; namely, by absorption of proteins from the region of the disease in the nose or by irritation or actual inflammation of the nasal ganglion or its related nerves, producing reflex asthma.

ABSORPTION CASES

In those cases wherein purulent disease is found, it is likely that the symptoms are the result of absorption of a protein material from the diseased area. This belief is not fortified by scientific experimental information but is based solely on clinical experience. It was found that the symptoms of asthma would disappear for a time after the sinuses that were found to be diseased were opened freely and drained and autogenous vaccines given. Then a relapse would occur which was not ameliorated by either more surgery or autogenous vaccines. When, however, a series of intravenous injections of typhoid vaccine or other nonspecific protein-containing substances was given, the symptoms subsided and the patient remained well for a longer or shorter time. The symptoms may reappear, but a few more injections of nonspecific protein will quickly cause them to disappear. This treatment works better after the sinuses have been opened widely and all diseased tissue has been removed. I have a number of such cases in my files, and for the sake of contrast will relate the histories of two cases, one in which treatment with nonspecific proteins was given without operative procedure, and one in which operation was done prior to the nonspecific protein therapy.

CASE 1.—Miss D. H., aged 28, a clerical worker, seen, Oct. 30, 1924, had become very hoarse several months before, and had her first attack of asthma four months before. Since then she had had wheezing and shortness of breath every night. All these symptoms followed a severe cold in the head. At present she expectorated white or yellow sputum during the entire day. Cloudy mucus could be seen to drip from the regions of both superior meatuses. There was polypoid degeneration of the posterior portion of the left middle turbinate. Large and small moist râles could be heard all over the lungs, but more at the bases. She was not sensitive to any of the bacteria found in her nasal discharge or to any of the 119 proteins with which she was tested. She was relieved for only three and one-half hours after 50 per cent. cocain solution was applied to the region of both nasal ganglions. Suction and douche were of no avail. She received four days of complete relief after an intravenous injection of 100 million mixed typhoid bacilli and had received six injections, all told. The injections were given at from two to three weeks apart. Except for a short severe attack incident to an acute cold in the head, she has been very comfortable, sleeps mostly every night through, and attends business each day.

CASE 2.—G. C., a man, aged 30, a clerk, seen, May 27, 1924, for ten years had had shortness of breath, wheezing and coughing. Before the advent of the asthmatic attacks he was treated for epistaxis and nasal polypi. Before the attack began, nasal breathing was obstructed. Cough preceded the wheezing. He had had a nasal discharge for many years, and his nose had been operated on many times. There had been periods during the past ten years when he was entirely free from symptoms. He was not sensitive to any protein or autogenous suspension of bacteria isolated from the nasal discharge. Although the ethmoid areas gave visible evidence of having been subjected to surgery, the tissues in this region were soggy and polypoid, and a yellow, thick discharge was seen to exude from many places. Suction, douches and autogenous vaccines gave the patient some relief, but as soon as this treatment was discontinued, the symptoms recurred with the same intensity. Cocainization of the regions of both nasal ganglions gave him relief for only a few hours. It was then decided to clean out all the exuberant tissue from the ethmoid and sphenoid region and then expose the denuded surfaces to radium emanations in an effort to prevent the recurrence of the polypi. Exposure of 600 millicurie hours was used in both nostrils. For a short time following this treatment, the patient felt very comfortable and was able to resume his work. Then the symptoms returned with such fury that the patient was completely incapacitated. I then consulted Dr. Ross Skillern, who advised that whenever the ethmoid regions showed signs of filling up with water-logged tissue or polypoid growth they should be immediately attacked and in between surgical efforts the nasal passages should be tamponed two or three times weekly with 10 per cent. protargin mild solution. Notwithstanding the fact that this program was religiously followed for about one month, the symptoms continued unabated. November 4, he was given 100 million mixed typhoid bacteria intravenously and was not seen again until Jan. 30, 1925, when he stated that about one week after the injection he began to feel better and felt comparatively well. No visible polypi were observed in either nostril. A slight amount of cloudy mucus was present on the floor of the nasal chambers posteriorly. Very occasional dry râles were heard over the larger bronchi. February 2, another similar treatment of mixed typhoid vaccine was given intravenously and he has been well up to date.

Time does not permit me to relate the comparable cases from this group, but I can say with a great deal of assurance that the results are sufficiently encouraging to stimulate one to continue along these lines.

REFLEX CASES

On looking back into my records, I find cases that I failed to classify as reflex in nature. For instance, a case of bronchial asthma in which symptoms developed after a bilateral ethmoidectomy; another in which symptoms occurred a short time after a tonsillectomy that left broad scars running into the palate. A third

patient developed asthma after I removed large masses of polypi from both ethmoid regions. This last case is interesting because of the fact that after most of the polypi were removed, a large succulent polyp hung down into the naso pharynx. A ridge on the septum prevented me from snaring it off, and it was evident that a submucous resection would be necessary before it could be removed. The patient developed asthma before the septum operation could be done, and he never returned.

The first two cases were thoroughly investigated and tested with proteins, and no other deduction can be made except that they were of reflex origin produced by involvement of nerve trunks in scar tissue. The last was not tested, but from the sequence of events, one could with certainty conclude that the large polypoid masses hanging from the region of the nasal ganglion produced enough traction in that area to cause irritation. Knowing what I do now about this phase of the subject, I am convinced that these three patients would have been relieved of their symptoms by injection into the nasal ganglion.

Children who suffer with symptoms of bronchial asthma directly on the advent of an acute nasopharyngitis may well be included in the category of reflex asthma, because the cough, dyspnea and cyanosis come on quickly after the nasal or pharyngeal symptoms become manifest. Furthermore, treatment directed to the nose and the upper recesses of the postnasal space usually ameliorates the symptoms. I feel that I am extremely fortunate in being able to report the following case, because in its symptomatology it embodies most of the spasmodic phenomena included in the reflex syndrome as described by Sluder:

CASE 3.—L. B., a girl, aged 7, seen May 22, 1923, had had attacks of asthma since her fourteenth month of life. Attacks were usually preceded by cold in the head. She had no nasal discharge, cough or expectoration between attacks, nor were there any symptoms of asthma when the acute infection had passed away. When the attack begins she sneezes a great deal, there is slight nasal discharge and postnasal dripping, and then follow sequentially a tracheal cough, dyspnea, cyanosis, and lastly nausea and persistent vomiting. The attacks can be shortened by giving atropin sulphate to the physiologic limit by mouth, and suprarenal extract followed by a solution of neutral acriflavine 1:1,000 instilled into the nose frequently. The attack can be prevented by using the same treatment just as soon as the nasopharyngeal infection is evident. This patient has been thoroughly studied, and it has been found that she has a hyperplastic sphenoiditis and ethmoiditis. She is also slightly sensitive to a number of proteins, but no restriction is made in her diet, as it has been found that these do not excite the attack; they may, however, be predisposing factors.

Many children suffer with asthma. Among these there are some who have no demonstrable allergy but whose noses are more or less constantly discharging or there is postnasal dripping. These patients suffer with nasal obstruction when they try to go to sleep, and catch cold easily. Treatment directed to the back of the nose in the region of the posterior ethmoid cells usually is followed by good results. It is impossible to say that this class of case belongs to the absorption or reflex group or a combination of both. The following case history will illustrate this type:

CASE 4.—H. E., a boy, aged 7 years, seen, Nov. 11, 1924, since his tenth month of life had attacks of difficult breathing. Three years ago he had his tonsils and adenoids removed. For two years following this, he was free from symptoms. During the last five months he had attacks of coughing, wheezing and dyspnea, particularly at night. As a rule he coughed during the day and had asthmatic attacks at night. His nose was constantly discharging, and he caught cold frequently. An aunt on his maternal side had asthma. He was tested with 119 proteins, but no positive reactions were obtained. The inferior turbinates were large, and mucopurulent material rested on the floor of the nose. Both middle turbinates were enlarged and more or less filled the upper part of the nasal chamber. Around and about the middle turbinates, mucus and pus could be seen. The nasal breathing was obstructed. Twice weekly, the turbinates were shrunken with suprarenal extract and then suction applied, followed by a warm douche. Just before bedtime a few drops of a 1:2,000 solution of suprarenal extract was instilled into both nostrils, and five minutes later both nasal chambers were flooded with freshly prepared 10 per cent. protargin mild solution. Under this regimen the symptoms stopped and the child has been well since.

CONCLUSIONS

Every case of bronchial asthma should be investigated from every angle. The result of the findings of the internist, clinical microscopist, immunologist, bacteriologist, roentgenographist and rhinologist should be studied as a whole and deductions made from this evidence.

Disease of the paranasal sinuses is competent to produce the complex called asthma. From an etiologic standpoint, intranasal disease, as it is related to bronchial asthma, may be classified as follows:

1. Asthma with unmistakable allergic findings, complicated by chronic purulent or hyperplastic sinusitis.

2. Asthma with slight or no allergic finds associated with chronic purulent or hyperplastic sinusitis.

(*a*) Cases of asthma due to the absorption of protein radicals from an area of disease in the paranasal sinuses.

(*b*) Cases of asthma of purely reflex origin, the nasal ganglion being irritated or rendered diseased from an adjacent sinus infection, or stimulated by impulses which come from correlated nerve fibers.

(*c*) Cases of asthma of combined absorption and reflex character.

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ABSTRACT OF DISCUSSION

DR. I. S. KAHN, San Antonio, Texas: Speaking from the point of view of the allergy worker, this is the fairest paper on this subject from the other side that I have encountered. I believe it possible to explain several apparently contradictory points. Regarding asthma as a condition of inherited cellular hypersensitiveness, clinical symptoms will depend on the degree of hypersensitiveness and the dosage of antigenic factors received. For instance, I have a patient at the present time, a child, who is slightly sensitive to feathers. Ordinarily he can sleep on feather pillows without getting asthma; but if he develops an acute infection of the upper respiratory tract, he will invariably have asthma. This boy with a cold will not have asthma if kept on a cotton pillow at night. Obviously, the infection of the upper respiratory tract increases the hypersensitiveness present. In pollen cases this dosage received varies according to the atmospheric air pollen content, increasing in high winds and decreasing in rainy seasons. In judging surgical results in asthma, this should be taken into consideration; that is, no patient should be considered helped until the effect of contact during the succeeding pollen season or seasons is known. There is evidence that pollen asthma may exist without positive skin tests. To my mind, hypersensitiveness to any allergic factor is increased by acute or chronic infection. Removal of nasal sepsis certainly reduces hypersensitiveness, in a small percentage of cases to a degree to clear up clinical symptoms. The numerous failures to correct asthma by intranasal therapy makes this

percentage obviously small. The allergy worker attains the same result by the usual desensitization methods, merely approaching the same problem from a different angle. However, it must be remembered that in many of these cases the supposed acute infectious cold is actually vasomotor rhinitis. The eosinophilic blood count will assist in making the differential diagnosis.

DR. MARK J. GOTTLIEB, New York: I do not believe that a very slight degree of sensitiveness is sufficient to cause symptoms. I laid particular stress on that in my paper. I do believe that an activating factor like cold may produce very severe symptoms. I have seen only one instance in which a patient with hay-fever did not give a skin reaction to pollen, no matter at what time of the year the test was made. In the particular case in which I did not obtain a reaction, it seemed that the patient had a peculiar sensitiveness of his mucous membrane and not of his skin. The eosinophil count, to my mind, is of questionable value because one finds in a great many cases of hay-fever and asthma that the eosinophil count is anywhere from 1 to 8 per cent., and if one happens to get one with a count of 1 per cent., one would not place any reliance on that.

TETRA-ETHYL LEAD POISONING

CLINICAL ANALYSIS OF A SERIES OF NONFATAL CASES *

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Lead in various forms has been recognized for a long time as one of the important occupational poisons. The zealous study and the insistent presentation of the characteristics of the condition have outlined a clinical picture which is a matter of general medical instruction and knowledge, in spite of the controversial nature of certain diagnostic details. The manufacture and handling of tetra-ethyl lead, resultant on its recent development for important industrial purposes, has brought about the appearance of a type of lead poisoning which, because of its unique character, is made the subject of this paper.

Tetra-ethyl lead is a clear, heavy (specific gravity about 1.62), oily liquid with a peculiar sweetish odor, which is somewhat volatile at ordinary temperatures. It is insoluble in either hot or cold water, but soluble in alcohol and acetone, and miscible in all proportions with fats and oils. It decomposes in the presence of sunlight with the formation of crystalline triethyl lead oxid, which in the presence of a halogen forms the triethyl lead salt. Crude tetra-ethyl lead and old containers of tetra-ethyl lead are likely to show the presence of this oxid or the halogen salts. The salts are water soluble. They have a peculiar odor not wholly unlike that of tetra-ethyl lead, and when inhaled in even very low concentration, they cause violent sneezing and a marked irritation of the mucous membranes. Tetra-ethyl lead is not immediately corrosive when applied to living tissues, but after exposure for some time necrosis results. If allowed to remain on the skin for half an hour or more, little or no sensation is produced, but desquamation occurs after a day or two, leaving white and glistening patches. However, if removed from the skin (best done with kerosene) within a short time after its application, no harmful effect on the skin is produced.

It would be assumed that such a compound of lead is a general protoplasmic poison, and in fact chemists in general have regarded it as such. Observation and experimentation have confirmed the truth of this assumption, and have shown the extent of toxicity, the avenues of admission into the body, and the clinical features that develop in the course of the poisoning. The peculiarities of the poisoning are striking, so much so that the condition often bears little resemblance to any of the clinical types of lead poisoning except the infrequent lead encephalitis. Nevertheless, it cannot be doubted that the lead is the essential toxic agent in the compound. In fact, its toxicity is of the same order of magnitude as that of other well known compounds of lead.[1] The peculiar symptoms and signs produced are due, in all likelihood, to the physical and chemical properties of the compound, which permit a more rapid absorption through the skin and lungs than is possible in the case of the more common lead compounds. More important, perhaps, is the fact that its distribution in the tissues may be confidently expected to differ from that of the usual lead compounds, in that its solubility in fats predisposes its early localization in relatively high concentration in tissues of high fat content, such as adipose tissue, the central nervous system, and the liver.

MODES OF ENTRANCE

It has been shown experimentally that tetra-ethyl lead is capable of producing illness and death of animals when inhaled as a vapor, when absorbed through the skin, and when administered orally or intravenously.[1] Under any one of these conditions death may be brought about in the course of from three to six hours, though minimal lethal doses kill in from twenty-four to seventy-two hours, ordinarily. Even intravenous administration does not produce immediate or even quick death, unless injected in such quantities and at such a rate as mechanically to block large pulmonary vessels. (Tetra-ethyl lead is immiscible with blood and does not cause coagulation. It may well be that poisonous properties depend on some degree of decomposition of the tetra-ethyl lead molecule.)

In man, poisoning is produced as a result of the inhalation of the vapor of tetra-ethyl lead, and also as a result of skin absorption. It may be produced accidentally or carelessly by ingestion, but in the industrial handling of tetra-ethyl lead such a source of poisoning is not encountered to any important degree. Usually, illness in men has been the result of the combination of skin absorption and inhalation of vapor over a considerable period of time. (The inhalation of the dust of the triethyl lead decomposition products of tetra-ethyl lead has also been seen to produce illness, which, under the conditions of observation, could not be differentiated from that due to tetra-ethyl lead alone.) However, an acute, even fatal poisoning may result from exposure either to a high concentration of vapor for a comparatively short time (several working days), or to a large quantity allowed to remain on a large skin surface.

SYMPTOMS

Under conditions that allow of the absorption of tetra-ethyl lead in any manner, in sufficient quantity, an illness develops in which some or all of the following subjective symptoms appear:

Insomnia.—This is one of the earliest and most troublesome symptoms. It may be so severe as to prevent any sleep for days at a time, or it may cause only frequent waking. In severe cases, any sleep that is obtained by the affected person is likely to be fitful and

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1. Kehoe, R. A.: The Toxicity of Tetra-Ethyl Lead and Certain Lead Salts, to be published.

disturbed, with frequent twitchings of the body, frequent movements, and crying out. The complaint is frequently made by the patient that his mind is too active to allow sleep, and that when asleep or awake he is in a dream or dreamlike state in which all kinds of grotesque and unusual situations arise. The attempt to sleep is more fatiguing than to remain active.

Nausea, Anorexia and Vomiting.—These symptoms are most pronounced in the early morning. A sickening taste, not described as metallic, contributes somewhat to the development of these symptoms. The person affected contemplates breakfast with a positive aversion, though as the day goes on he feels better and often eats heartily and with relish in the evening. However, an attack of nausea and vomiting may be precipitated at any time by the odor of tetra-ethyl lead, or even other odors that are objectional to him.

Vertigo and Headache.—Neither of these is pronounced in most cases, though something approaching them, in the form of a dull, full feeling in the head is often complained of. Occasionally, however, the vertigo is strikingly in evidence.

Muscular Weakness.—Some degree of weakness is a constant finding, and is commonly a very persistent complaint. It does not appear until the insomnia and anorexia are well established, and appears to be due in most cases to inadequate rest and food.

Itching of the skin is an occasional disturbing symptom.

OBJECTIVE SIGNS

The symptoms mentioned are unvaryingly accompanied by the following signs:

Pallor.—This is so uniform as to be impressive. It is not due to a blood destruction, but rather to a generally inadequate circulation brought about by a pronounced fall in blood pressure.

Subnormal Blood Pressure.—The blood pressure changes are seen early. They represent among the most reliable diagnostic signs. The systolic pressure may go as low as 80 mm. of mercury in a patient with a previously normal pressure. The diastolic pressure is relatively lower in almost every case, the pulse pressure being from 50 to 70 mm. of mercury.

Subnormal Temperature.—The temperature is extremely low in the early morning hours, often being as low as 96 F., rarely being above 97 in affected persons. It ascends during the day, but is usually subnormal throughout the entire twenty-four hours.

Loss of Weight.—This is a constant finding, varying from slight to great decreases, such as 15 pounds (7 kg.) in two or three weeks.

Tremor.—A well defined and coarse tremor is seen in most cases. With this the reflexes are exaggerated, and the muscles themselves are commonly hyperirritable, responding easily to mechanical stimulation. Occasionally the tremor is the most striking sign. In such a case there is a continuous tremor, exaggerated when an attempt is made to control it, and increased greatly by sudden, unexpected noises or events. The sudden twitching of an arm or leg may arouse the subject from sleep or cause him to drop an object held in the hand.

Peripheral neuritis, with paralysis or anesthesia, has not been seen in any of these cases, though a few cases have been reported elsewhere.

There is an increased respiratory rate, and a decreased pulse rate.

Gastric and intestinal cramps are not an important item in the clinical picture. In the few cases in which they have appeared, they have not been severe. They have never been the cause of initial complaint. Neither constipation nor diarrhea is seen often.

Blood Findings.—There is no characteristic blood finding. Hemoglobin determinations, carried out regularly on all patients, have failed to yield any information. In one or two cases there has been a very slight diminution, but in no case has it been significant. (Determinations were made with the Dare instrument.) There is little in the microscopic examination of the blood to indicate destruction of the erythrocytes. Polychromatophilia and stippling are found in a high percentage of cases of slow absorption over a period of months, but in cases in which there is evidence of rapid absorption, stippling is very commonly absent. Even in the cases that show polychromatophilia and stippling (and these are never pronounced blood pictures, such as are frequently seen in ordinary types of lead poisoning) there is no appreciable diminution of erythrocytes.

Lead Line.—The appearance of a lead line on the gums is not a constant, nor even a frequent finding. A lead line has been seen in several cases, and in two cases the line has been quite pronounced and characteristic. Yet this is not an early or important item in the diagnosis.

Urinary findings are meager except for the presence of lead. There is a constant hyperacidity of the urine in all severe cases, the urine remaining strongly acid to methyl red during the entire twenty-four hours. Albumin does not appear in the urine of even severly poisoned persons.

Lead Excretion.—Lead is excreted in larger quantities than is seen in most cases of lead poisoning. Excretion occurs by way both of the kidneys and of the alimentary tract. Usually the excretion in the feces exceeds that in the urine for a corresponding period of time. However, in one case, the urinary excretion uniformly exceeded that of the feces. The quantity excreted in a twenty-four hour specimen of urine has varied from nil up to 8.4 mg. of lead.

CLINICAL TYPES

In mild cases of poisoning, where the exposure has been slight and brief, insomnia and anorexia, with a slight drop in blood pressure and temperature, are frequently the only findings. In such a case the examination of the blood has failed to yield the slightest information. Instead of sleeplessness, the victim may complain of being disturbed in his sleep by frightful dreams. In the course of a few days, this condition disappears almost entirely, though it may leave the blood pressure subnormal for from one to three weeks.

In cases in which the symptoms are mild, but in which there has been a slight exposure over a considerable period of time (months), there is likely to be a change in the blood picture, in addition to the foregoing symptoms. A lead line has been seen in a few such cases also. Here careful examination of smears usually shows an occasional stippled erythrocyte, without the diminution of hemoglobin or the number of erythrocytes. The leukocyte count in such a case is commonly, though not constantly, increased from one or two thousand above the previous normal. Both the symptoms and the abnormalities in the blood picture tend to disappear quickly following cessation of exposure and the instigation of therapeutic measures.

In more severe cases, the symptoms are more numerous. Loss of weight, insomnia and anorexia are especially pronounced. With the improvement of the patient, lassitude, weakness on exertion, and the subnormal blood pressure and temperature become the most

prominent symptoms. The persistence of this condition may be so striking as to simulate the chronic fatigue of low grade infectious diseases. In the course of from six to ten weeks, however, all the symptoms disappear, and no residual effects can be found.

In acute cases, a central nervous system involvement is seen at once to be the essential characteristic of the condition. The patient is irritable, "nervous" and in a constant state of excitement, which may progress to such an extent as to render him maniacal. The mania resembles an alcoholic delirium very strikingly. In it the victim talks constantly and is in constant fear of animals or persons that are on the point of attacking him. His struggling to escape is continuous, and unless restrained or quieted in some fashion, he is likely to attempt to escape in any manner possible, even to leaping out of an upper window. The outcome of such a case is almost uniformly fatal, death occurring apparently from exhaustion.

DIAGNOSIS

The diagnosis of tetra-ethyl lead poisoning is to be made from a careful consideration of the symptoms and signs, together with a history of exposure. On the one hand, such poisoning may not safely be excluded because of the absence of the signs considered characteristic of ordinary lead poisoning. On the other hand, none of the items that go to make up the clinical aspect of this condition are characteristic of it alone. The conditions that offer the greatest difficulty in making a differential diagnosis are tuberculosis, syphilis, chronic myocarditis, chronic and subacute sinusitis, and other chronic infections with systemic intoxication. The finding of significant quantities of lead in the urine and feces may well be the only certain differential point in certain cases. However, the greatest difficulties in diagnosis are likely to be seen in those cases in which there is doubt as to a significant exposure to tetra-ethyl lead.

TREATMENT

The treatment that has been employed in the cases here discussed has been based on several considerations, in the absence of specific remedies. Lead is excreted by the poisoned person in the form of inorganic compounds, in part, at least. It seems obvious, therefore, that this organic compound is partially, if not wholly, converted into inorganic compounds of lead. From this it would follow that the variations in the symptomatology of tetra-ethyl lead poisoning, as opposed to ordinary lead poisoning, arise either from a unique distribution of lead in the tissues or from a great difference in the actual quantities present in the body. Assuming the correctness of these conclusions, the treatment of tetra-ethyl lead poisoning need not differ from the treatment of lead poisoning of other types. Accordingly, a type of treatment was employed that has demonstrated its efficacy in several types of heavy metal poisoning. The experimental basis of the method [2] and the clinical evidences [3] of its value appear elsewhere. The principles underlying it are as follows:

1. Heavy metals combine with and injure living tissue.

2. The combination of heavy metal and tissue may be both prevented and broken by the presence of sufficient concentrations of salts of the light metals, in such a way as to restore the tissue to normal physical state, and to free the heavy metal in soluble form for excretion.

3. The symptoms of acid intoxication and edema, associated with heavy metal poisoning, especially of the acute type, may be combated effectively by the same means.

The actual treatment consisted of the administration of mixtures of sodium bicarbonate or sodium citrate, magnesium oxid and calcium carbonate in quantities sufficient to make and maintain neutrality of the urine. From 20 to 30 gm. of a mixture of such salts is required for this purpose daily. In the more severe cases, magnesium sulphate was added to this list, given in small doses throughout the day in order to maintain a free diuresis. The bowels were kept open for the free secretion of lead by means of saline cathartics. Since none of the cases treated showed any evidence of the development of acute edema, large quantities of water and citrus fruit juices were administered.

No narcotics were used to produce sleep. It cannot be emphasized too much that the use of opium compounds and chloral hydrate in this and in similar types of insomnia is an exceedingly dangerous practice.

THERAPEUTIC RESULTS

It was found that after a thorough alkalization the insomnia decreased in severity, usually disappearing in a few days. The appetite returned almost at once, and with it the subject ceased to lose weight. In several cases general weakness, nervous irritability, as evidenced by tremors and somewhat exaggerated reflexes, together with disturbing dreams, persisted for considerable periods of time. The low blood pressure also tended to persist. However, there was no increase of severity of symptoms, and no relapse into previously severe symptoms in a single case. It is possible, of course, that this resulted largely from cessation of exposure to tetra-ethyl lead, and from the rest and diversion occasioned by light outdoor exercise and recreation. (None of these patients were put to bed for the reason that not one was dangerously ill, and all maintained stoutly that they felt better out of bed.) On the other hand, it is probably not without significance that none of the delayed effects of either ordinary lead poisoning or of this particular type of lead poisoning have appeared in any of these cases. Experimental evidence obtained in the study of these patients is to be made the subject of a later and more detailed paper, but on clinical evidence alone, I feel justified in presenting the foregoing method of treatment as the most satisfactory one that can now be offered. It is my opinion that the beneficial effects of the administration of sodium thiosulphate in arsenic and lead poisoning [4] and potassium iodid in lead poisoning are explainable on the basis of the principles stated above. It seems likely that a greater effect may be obtained from the use of light metal salts, which are borne in much higher concentration than these. The efficacy of these therapeutic methods in the acute maniacal types of tetra-ethyl lead poisoning has not been determined. It is suggestive, however, that in an acute case of inorganic lead poisoning with pronounced cerebral symptoms, such a course of treatment, vigorously carried out, resulted in the permanent disappearance of cerebral manifestations within a period of twelve hours.[5]

2. Kehoe, R. A.: The Effects of Heavy Metals upon a Protein and the Reversal of Such Effects, J. Lab. & Clin. Med. **5**: 443 (April) 1920; The Activation of An Enzyme Poisoned by Heavy Metal Salts, ibid. **7**: 736 (Sept.) 1922.

3. Weiss, H. B.: A Method of Treatment of Mercuric Chlorid Poisoning, J. A. M. A. **68**: 1618 (June 2) 1917; The Principles of Treatment in Mercuric Chlorid Poisoning, J. A. M. A. **71**: 1045 (Sept. 28) 1918; The Treatment of Mercuric Chlorid Poisoning, Arch. Int. Med. **33**: 224 (Feb.) 1924.

4. Dennie, C. C., and McBride, W. L.: Treatment of Arsphenamin Dermatitis, Mercurial Poisoning and Lead Intoxication, J. A. M. A. **83**: 2082 (Dec. 27) 1924.

5. McCord, C. P.: Report of Case, Cincinnati J. Med. **5**: 354 (Sept.) 1924.

Clinical Notes, Suggestions, and New Instruments

A TYPHOID CARRIER

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History.—A farmer, aged 39, of an Oxford County town, Maine, married, having two living children, examined, Feb. 3, 1925, complained of dizziness and headaches, despondency, indigestion, flatulence, nausea and vomiting, pain in the stomach after eating, and weakness of the left arm and leg with paresthesia. Part of the time he was very hoarse; the taste in his mouth was so bad that he chewed tobacco constantly. He had various rheumatic and neuralgic attacks, diagnosed as neuritis, focal infections, nervous exhaustion or spinal subluxation, depending on the diction of his various medical attendants. The family history was negative. As a child he had been well till 10 years of age, when he had typhoid fever. There had been no subsequent illness worthy of memory, though he had always complained of indigestion and flatulence. He lived with his parents on an isolated farm. He had worked at the "Balsams," Dixville Notch, N. H., as chore man and porter from 1904 to 1913 every season; he was never a food handler and he had never associated with illness or had any illness. At the age of 29 he married, and a year after marriage left the farm, living in a nearby village, and having a private water supply and plumbing system. His wife had typhoid fever of a severe type in June, 1919, but lived. Their older child had typhoid fever closely following, and after a long illness recovered. The second child had typhoid in October, 1920, followed by osteomyelitis, operation and death. The father-in-law, who had boarded in the family a week, developed typhoid fever about the same time as the second child, but lived. By this time, the local board of health made an investigation, and a representative of the state board of health was called in, but with negative results. In November, 1922, we were called in consultation to the village in which this man lived to see a patient who proved to have typhoid; and milk, supplied by the man who is the subject of this report, seemed to be the only possible source of the infection.

Examination.—The patient was harrassed, anxious and sick-looking. He was 6 feet, 2 inches (188 cm.) tall and weighed 161 pounds (73 kg.). The blood pressure was 128 systolic and 78 diastolic. The heart and lungs were normal. The urine was alkaline in reaction, clear, and negative to sugar, albumin and casts; the specific gravity was 1.028. A blood test showed: red blood cells, 5,184,000; white blood cells, 5,000; hemoglobin, 95 per cent.; color index, 0.9; polymorphonuclears, 69 per cent.; lymphocytes, 29 per cent.; transitionals, 1 per cent.; mast cells, 0.3 per cent.; large mononuclears, 0.7 per cent.; platelets apparently decreased. The roentgen ray showed a normal stomach, duodenum and intestine entirely to the anus.

There were no gallstones visible. The spine and chest were normal. Stool cultures from a normal movement were positive for *Bacillus typhosus* after forty-eight hours; after calomel and oil, they were positive for *B. typhosus* after slightly less incubation; from watery results following calomel and oil, they yielded a very rapid and luxuriant growth in twenty-four hours. The passage of the Rehfuss tube gave a normal acid content of the stomach; acid bile in several samples, and finally alkaline bile, which rapidly grew *B. typhosus*. The widal reaction was positive with *B. typhosus;* the serum dilution was 1:40. The patient was reported to the state board of health as a carrier. He suffered mental anguish and depression, but consented to any treatment.

A cholecystectomy and an appendectomy were performed, February 22, by Dr. Carl Robinson. The appendix was long, injected and inflamed, but negative to *B. typhosus*. The fundus of the gallbladder was soft and free, dull gray, and somewhat mottled; there were a few filmy adhesions to the transverse mesocolon, easily freed. The gallbladder was removed intact with a clamp on the cystic duct. There was a small stone near the cystic duct. The common and hepatic ducts were normal to palpation. Laboratory examinations were made by Dr. Mortimer Warren. Cultures made from the center of the gallstone, after flame sterilization, grew *B. typhosus*. Cultures of the submucous tissue of the gallbladder after the mucous membrane was seared grew *B. typhosus*.

Ten consecutive stools following the operation were negative, some of which were taken after vigorous catharsis. The patient improved mentally and returned home from the hospital, March 29. At the present date, May 8, he has gained 20 pounds (9 kg.). A culture of the stool was again taken, May 4, and reported negative.

COMMENT

It is a remarkable length of time, twenty-nine years, that this man was a typhoid carrier. It is to be noted, as evidence of his personal neatness and cleanliness, that for nine years he worked in a hotel without knowledge of typhoid resulting. The intimate associations of family life were promptly and dramatically productive of disease. The case is a valuable testimonial to the localization of *B. typhosus* in the gallbladder. It is also made evident by our investigation of submucous tissue in the gallbladder that any treatment short of removal must be futile.

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CAVERNOUS SINUS THROMBOSIS: AN UNUSUAL CASE*

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Approximately 300 cases of cavernous sinus thrombosis have been reported in the literature.[1] Of these, the great majority have occurred either by metastatic infection from a focus drained by this sinus, or by the extension of a neighboring infectious process. The case here reported gave very little evidence, either direct or presumptive, of an infectious etiology, and for that reason is of sufficient interest to warrant publication.

REPORT OF CASE

F. B., a man, aged 29, single, a store clerk, admitted to the Wisconsin General Hospital, Feb. 14, 1925, had had diabetes since May, 1924, which had been treated by regulation of the diet with fair success. For the past six months his diet had not been carefully controlled, and he had a recurrence of the diabetic symptoms. For two weeks before admission he had not been feeling well, and on February 12 he suddenly noted that the right eye and the right side of his face were swollen and that his nose was "stuffed up." His right eye quickly became blind and did not move with the other, and he lost sensation over the right side of his face.

The patient was quite emaciated and markedly dehydrated. He was slightly drowsy, and the speech was indistinct. The face was asymmetrical by reason of a brawny swelling involving the right eyelids, cheek and side of the nose. The right upper lid was ptosed. The right eyeball showed total ophthalmoplegia, slight exophthalmos and apparently increased lacrimation. The tension of the right globe was slightly diminished. There was chemosis and injection of the conjunctiva, and subconjunctival ecchymosis. The cornea was completely anesthetic. Examination of the fundus revealed marked edema, obscuring all detail except for a few shadowy lines indicating the position of the larger vessels. The left eye was normal except for slight fulness of the retinal veins. There was complete anesthesia and loss of muscular power of the right side of the face and forehead. The right nostril and the right side of the palate were ulcerated, and covered with bloody crusts. On drinking, there was drooling from the right side of the mouth. The heart and lungs were normal. The abdomen was markedly scaphoid. The extremities were much emaciated. The patellar and Achilles jerks were absent. Other tendon reflexes were normal. The blood pressure was

* From the Department of Clinical Medicine, University of Wisconsin Medical School.

1. Smith, D.: Arch. Ophth. **47**: 482 (Sept.) 1918.

96 systolic and 48 diastolic. The temperature was 99.2, the pulse 98, and the respirations 18.

Laboratory examinations revealed a urine containing sugar ++++, acetone ++++, and diacetic acid ++. The blood count was: hemoglobin, 59 per cent.; red cells, 3,200,000; white cells, 10,400; neutrophils, 79 per cent. There was marked anisocytosis of the red cells. The blood Wassermann reaction was negative. The blood sugar was 205 mg.; nonprotein nitrogen, 29 mg.; alkali reserve, 40. The plasma showed a marked lipemia. Roentgen-ray examination of the sinuses showed slight clouding of the sphenoid.

Treatment consisted in supplying fluids to relieve the very marked dehydration, and the administration of glucose and insulin to combat ketosis.

On the following day, February 15, the injection about the right side of the face had changed from an active to a passive one, with definite cyanosis of the right side of the nose and about the right eye. Exophthalmos was slightly more prominent, and the tension of the right globe was somewhat more diminished. Nystagmus was observed in the left eye. The temperature was 98, the pulse 80, and the respirations 20. The leukocyte count was 13,200, with 80.6 per cent. neutrophils.

February 16, the cornea of the right globe had become opaque and lusterless, and a serosanguineous, fetid fluid exuded from the right palpebral fissure. The globe was very soft. In the left eye there was paralysis of the external rectus and edema of the upper lid. The ocular tension was normal, and the pupil reacted sluggishly to light. In the afternoon of the same day there was paralysis of all the extra-ocular muscles, and the pupil was fixed. There was a marked slump in the patient's general condition, and the temperature rose to 101 F., without concomitant rise in pulse or respiration rates.

February 17, the right eye had continued to advance to a condition of phthisis bulbi, with a tension of 4 (Schiötz). It was apparent that the left eye was following the course of the right exactly, showing the signs about three days later than did the right.

February 18, the tension of the right eye was 0 (Schiötz). There was beginning gangrene of the right ala of the nose, the right upper lid at the inner canthus, the right side of the palate, and the lateral wall of the right nostril, including the turbinates. The edema of the face was extending over the right temporal and preauricular regions, and was noted also about the left eye and the left side of the nose. The general condition was worse. The patient was in a stupor from which he could not be aroused, and there were irregular periods of apnea of the Biot type. The temperature ranged from 99 to 100 F.

February 19, there were noted subcutaneous extravasations of blood, with serosanguineous discharge, in both external ear canals. The tension of the left eye was diminished, and the cornea was beginning to become hazy.

February 21, there were signs of involvement of the arms and legs, showing occasional jerky movements on the right and increased reflexes on the left.

February 23, there was complete paralysis of the left arm and leg, with increased reflexes. The gangrene of the right side of the face had advanced and there was a foul purulent discharge from the right eye. The temperature was 96 F., the pulse 60, and the respirations 14.

February 24, there was noted an increase in the depth of the coma, and marked involuntary movements of the extremities, which later in the day disappeared with complete paralysis of all extremities. The temperature gradually rose during the day, together with the pulse and respirations, until in the evening they were 106 F., 166, and 42, respectively. The patient died at 10 p. m. Unfortunately, permission for a necropsy could not be obtained.

COMMENT

In studying the course of this patient, it is quite apparent from the physical findings that the condition commenced with thrombosis of the right cavernous sinus. There was little if any evidence from the temperature, blood count, blood culture or history that this thrombosis was of infectious etiology. To the contrary, the severe diabetic condition, together with marked malnutrition and dehydration, pointed to a primary thrombosis of the sinus, with these factors as etiologic. The progressive course of the involved areas indicated an extension of the thrombotic process to include first the left cavernous sinus and then, probably through the inferior petrosal sinuses, the sigmoid and lateral sinuses.

NEW NOZZLES FOR EAR SYRINGE

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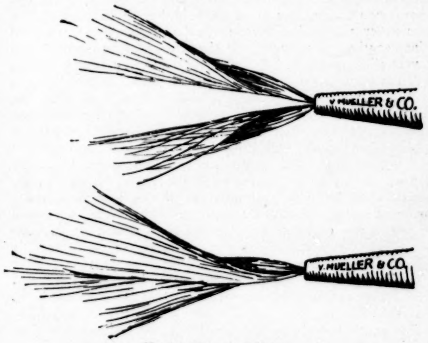
The stream of water from the nozzles of various ear syringes is not delivered into the external auditory canal to the best advantage.

The old theory is that, the canal being curved, the water will strike a curved portion, be deflected from the prominences to the valleys, get under the foreign substance, and force it out.

This is true when the water strikes right; but the canal is so irregular in many of its dimensions and varies so much at different ages and under so many different conditions (especially if the canal is misshapen with long impactions of cerumen), that the stream of water must be directed at many different angles before we can remove cerumen or other foreign matter.



Nozzles for ear syringe.

The surprising deviations of the external auditory canal are most strikingly illustrated by an observation of the contours of fusible metal casts of this canal. Therefore, I felt that if the stream is given a twist, or a centrifugal motion, as it leaves the spout of the syringe, it will not only accomplish the result better and save a great deal of time, but will appeal to physicians, especially those specializing in otology. The centrifugal twist is not so great that it will interfere materially with the force of the stream leaving the nozzle point.

The instrument house, in trying to carry out my idea of a stream of water that would show this twist, wrought two nozzles, either of which is excellent. If anything, the divided stream is the better.

577 Fourteenth Street.

Public Cooperation with County Health Department.—When a campaign for a health department is started in a county, the county authorities should be apprised of the plan. It is desirable for some local organization to initiate the campaign and to request assistance, if needed, from the state health department in creating favorable sentiment. Occasionally, county authorities are found who are convinced of the inherent soundness of the plan and are willing to appropriate funds without waiting for an expression of public sentiment. In such cases it is still important to inform the people of the county fully as to the functions of the health department so that public cooperation, which is essential to success, may be had by the health officer.—Parran, Thomas, Jr.: *Pub. Health Rep.* **40**:984 (May 15) 1925.

Special Article

REPORT OF COMMITTEE ON COMPENSATION FOR EYE INJURIES *

The Committee on Compensation for Eye Injuries was appointed by the Section on Ophthalmology of the American Medical Association in 1919. It has submitted several reports. These have been accepted but not adopted, as more time was deemed necessary for further research. Herewith we submit a final report based on the results of our investigations, both experimental and clinical.

SCOPE

The aim of the committee is to establish a method of determining the loss of visual efficiency of a person who has suffered any degree of impairment of vision as the result of occupational disease, or injury. Such loss is to be the basis on which the amount of compensation shall be determined.

SECTION I. COMPENSATION BASED ON THE VISUAL EFFICIENCY OF THE INDIVIDUAL

Compensation for loss of vision should be that proportional part of the compensation provided by law for total permanent disability which expresses the percentage loss of visual efficiency of the individual in pursuing a gainful occupation.

Total permanent disability of both eyes is identical with total permanent disability of the individual.

It will be noted that this method of determining compensation makes unnecessary the separate provisions for computing compensation for disability of one eye and for disability of both eyes.

At present the compensation laws of most states contain provisions that base awards on disability of one eye only, and some statutes provide separate schedules for one eye and for both eyes. In the interest of uniformity, definiteness and justice, it is urged that compensation statutes be so changed that awards for ocular disability shall be based on the percentage of permanent disability only.

SECTION II. THREE PRIMARY AND COORDINATE FACTORS OF VISION

There are three elements of vision, each of which has an interdependent and coordinate relation to full visual efficiency. These coordinate factors are (*a*) acuteness of vision (central visual acuity); (*b*) field of vision, and (*c*) muscle function. Although these factors do not possess an equal degree of importance, no act of vision is perfect without the coordinate action of all.

Other functions, though secondary and dependent, are recognized as important, such as depth perception, stereoscopic vision, fusion sense, color perception, adaptation to light and dark, and accommodation. These functions are inherently dependent on the status of the three coordinating functions of vision, and they also depend on central nervous function.

SECTION III. MAXIMUM AND MINIMUM LIMITS OF THE PRIMARY COORDINATE FACTORS OF VISION

In order to determine the various degrees of visual efficiency, (A) normal or maximum, and (B) minimum limits for each coordinate function must be established; i. e., the 100 per cent. point and the 0 per cent. point.

A. *Maximum Limits.*—The maximum efficiency for each of these is established by existing and accepted standards.

(*a*) Central Visual Acuity: The ability to recognize letters or characters which subtend an angle of 5 minutes, each unit part of which subtends a 1 minute angle, is accepted as standard. Therefore, a 20/20 Snellen is employed as the maximum acuity of central vision, or 100 per cent. acuity.

(*b*) Field Vision: A visual field having an area which extends from the point of fixation outward 65 degrees, down and out 65 degrees, down 55 degrees, down and in 45 degrees, inward 45 degrees, in and up 45 degrees, upward 45 degrees, and up and out 55 degrees is accepted as 100 per cent. industrial visual field efficiency.

(*c*) Muscle Function: A maximum normal muscle function is present when there is absence of diplopia in all parts of the field of binocular fixation.

B. *Minimum Limits.*—The minimum limit, or the 0 per cent. of the coordinate functions of vision, is established at that degree of deficiency which reduces vision to a state of uselessness.

(*a*) Central Visual Acuity: The minimum limit of this function is established as the loss of light perception, light perception being *qualitative* vision. The practical minimum limit of *quantitative* visual acuity is established as the ability to distinguish form. Experience, experiment and authoritative opinion show 20/200 Snellen as 80 per cent. loss of visual efficiency, 20/380 as 96 per cent. loss, and 20/800 as 99.9 per cent. loss. Table 1 and Chart 1 show the percentage loss of visual efficiency corresponding to the Snellen notations for distant and for near vision, for the measurable range of quantitative visual acuity.

(*b*) Field Vision: The minimum limit for this function is established as a concentric central contraction of the visual field to 5 degrees. This degree of contraction of the visual field reduces the visual efficiency to zero.

(*c*) Muscle Function: The minimum limit for this function is established by the presence of diplopia in all parts of the motor field. This condition constitutes zero visual efficiency.

SECTION IV. MEASUREMENT OF COORDINATE FACTORS AND THE COMPUTATION OF THEIR PARTIAL LOSS

A. *Central Visual Acuity.*—Visual acuity shall be measured both for distance and for near, using the Snellen notation, each eye being measured separately. Central visual acuity for distance shall be measured at a test distance of 20 feet. Central visual acuity for near shall be measured at a test distance of 14 inches.

The quantity that determines the visual acuity efficiency of one eye shall be the result of the weighted values assigned to these two measurements for distance and for near. A onefold value is given to the former and a twofold value to the latter. Thus, if the visual efficiency for near is 40 per cent. and the visual efficiency for distance is 70 per cent., the central visual acuity efficiency for the eye in question would be:

$$\frac{(40 \times 2) + (70 \times 1)}{3} = \frac{80 + 70}{3} = \frac{150}{3} = 50,$$

or a 50 per cent. visual acuity efficiency.

The best central visual acuity obtainable *with correcting glasses* shall be used in determining the degree of visual efficiency.

If there exists a difference of more than 4 diopters of spherical correction between the two eyes, the best possible vision of the injured eye without glasses or with lenses of not more than 4 diopters spherical difference from the fellow eye shall be the acuity on which subsequent rating is to be computed for this injured eye.

The Snellen test letters or characters as published by the committee and designated "Industrial Vision Test Charts" subtend a 5 minute angle, and their component parts a 1 minute angle. These test letters are to be used at an examining distance of 20 feet for distant vision and 14 inches for near vision from the patient. The illumination is to be not less than three foot candles, nor more than ten foot candles on the surface of the chart.

Table 1 and Chart 1 show the visual acuity and the percentage of loss of efficiency, both for distance and for near, for partial loss between 100 per cent. and zero vision for one eye.

B. *Field Vision.*—The extent of the field of vision shall be determined by the use of the usual perimetric test methods, a white target being employed which subtends a 1 degree angle under illumination of not less than three foot candles, and the result plotted on the industrial visual field chart.

* Read before the Section on Ophthalmology at the Seventy-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., May, 1925.

TABLE 1.—*Percentage Loss of Visual Efficiency Corresponding to Snellen Notations for Distant and for Near Vision for Measurable Range of Quantitative Visual Acuity*

Snellen Notation for Distance	Snellen Notation for Near	Percentage of Visual Efficiency	Percentage Loss of Vision
20/20	14/14	100.0	0.0
20/25	14/17.5	95.7	4.3
20/30	14/21	91.5	8.5
20/35	14/24.5	87.5	12.5
20/40	14/28	83.6	16.4
20/45	14/31.5	80.0	20.0
20/50	14/35	76.5	23.5
20/60	14/42	69.9	30.1
20/70	14/49	64.0	36.0
20/80	14/56	58.5	41.5
20/90	14/63	53.4	46.6
20/100	14/70	48.9	51.1
20/120	14/84	40.9	59.1
20/140	14/98	34.2	65.8
20/160	14/112	28.6	71.4
20/180	14/126	23.9	76.1
20/200	14/140	20.0	80.0
20/220	14/154	16.7	83.3
20/240	14/168	14.0	86.0
20/260	14/182	11.7	88.3
20/280	14/196	9.7	90.3
20/300	14/210	8.2	91.8
20/320	14/224	6.8	93.2
20/340	14/238	5.7	94.3
20/360	14/252	4.8	95.2
20/380	14/266	4.0	96.0
20/400	14/280	3.3	96.7
20/450	14/315	2.1	97.9
20/500	14/350	1.4	98.6
20/600	14/420	0.6	99.4
20/700	14/490	0.3	99.7
20/800	14/560	0.1	99.9

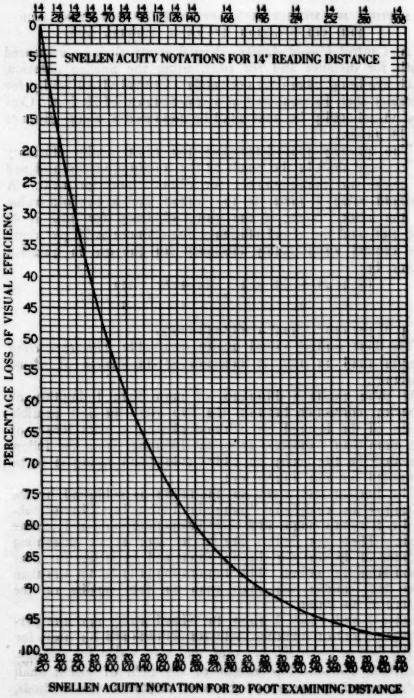

SNELLEN ACUITY NOTATIONS FOR 14" READING DISTANCE
PERCENTAGE LOSS OF VISUAL EFFICIENCY
SNELLEN ACUITY NOTATION FOR 20 FOOT EXAMINING DISTANCE

Chart 1.—Percentage loss of visual efficiency corresponding to the Snellen notations for distant and for near vision, for the measurable range of quantitative visual acuity.

The amount of radial contraction in the eight principal meridians shall be determined. The sum of these eight, divided by 420 (the sum of the eight principal radii of the industrial visual field) will give the *visual field efficiency of one eye in per cent.*

C. *Muscle Function.*—Muscle function shall be measured in all parts of the motor field, recognized methods being used for testing.

Diplopia may involve the field of binocular fixation entirely or partially. When diplopia is present, this shall be platted on the industrial motor field chart. This chart is divided into twenty rectangles, 4 by 5 degrees in size. The partial loss to muscle function due to diplopia is that proportional

TABLE 2.—*Loss in Muscle Function*

No loss	equals	100%	Motor	Field	Efficiency
1/20	"	98%	"	"	"
2/20	"	95%	"	"	"
3/20	"	92%	"	"	"
4/20	"	89%	"	"	"
5/20	"	87%	"	"	"
6/20	"	84%	"	"	"
7/20	"	81%	"	"	"
8/20	"	77%	"	"	"
9/20	"	74%	"	"	"
10/20	"	71%	"	"	"
11/20	"	67%	"	"	"
12/20	"	63%	"	"	"
13/20	"	59%	"	"	"
14/20	"	55%	"	"	"
15/20	"	50%	"	"	"
16/20	"	45%	"	"	"
17/20	"	39%	"	"	"
18/20	"	32%	"	"	"
19/20	"	22%	"	"	"
20/20	"	0%	"	"	"

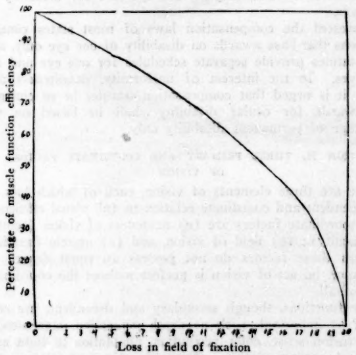


Chart 2.—Curve for loss of efficiency in diplopia.

area which shows diplopia as indicated on the platted chart compared with the entire motor field area (Table 2 and Chart 4).

When diplopia involves the entire motor field, causing an irremediable diplopia, the loss in coordinate visual efficiency is equal to the loss of use of one eye; and when the diplopia is partial, the loss in visual efficiency shall be proportional and based on the efficiency factor value of one eye.

SECTION V. INDUSTRIAL VISUAL EFFICIENCY OF ONE EYE

The industrial visual efficiency of one eye is determined by obtaining the product of the computed coordinate efficiency values of central visual acuity, of field vision, and of muscle function. Thus, if central visual acuity efficiency is 40 per cent., visual field efficiency is 81 per cent. and the muscle function efficiency is 100 per cent., the resultant visual efficiency of the eye will be $0.40 \times 0.81 \times 1.00 = 32.4$ per cent. Should diplopia be present in part of the motor field so that the motor efficiency is reduced 50 per cent., the visual efficiency would be $0.40 \times 0.81 \times 0.50 = 16.2$ per cent.

SECTION VI. INDUSTRIAL VISUAL EFFICIENCY OF THE INDIVIDUAL

It is a fact well established by common experience that the visual efficiency of the individual is by no means reduced to one half (50 per cent.) by the complete loss of one eye, vision in the fellow eye remaining normal. Hence the necessity for a weighted average. The researches of the committee show that a weighing factor of 3 applied to the more efficient eye gives an efficiency rating of the individual in substantial agreement with the consensus of technical judgment, such judgment being based on actual reproduction, comparison and relative evalution of various specific conditions of visual efficiency.

The industrial efficiency of the individual is computed as follows: To the percentage figure which has been determined as the industrial visual efficiency of the *less* efficient of the two eyes, three times the percentage figure that has been determined similarly for the *more* efficient eye is added, and the result is divided by 4. The quotient will be the percentage figure that expresses the *industrial visual efficiency of the individual.* Thus, if the individual efficiency rating of the injured eye is 40 per cent. and that of the fellow eye is 100 per cent., the visual efficiency of the individual will be found by the following formula:

$$\frac{(40 \times 1) + (100 \times 3)}{4} = \frac{340}{4} = 85 \text{ per cent.}$$

Individual industrial efficiency, and compensation should be 15 per cent. of the amount awarded for total permanent disability.

SECTION VII. TYPES OF OCULAR INJURY NOT INCLUDED IN THE DISTURBANCE OF THE COORDINATE FACTORS

Certain types of ocular disturbance are not included in the foregoing computations and these may result in disabilities, the value of which cannot be computed by any scale as yet scientifically possible of deduction. Such are disturbances of accommodation, of color vision, of adaptation to light and

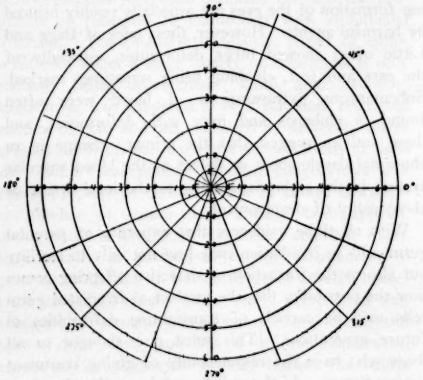


Chart 3.—Industrial visual field chart.

dark, metamorphopsia, entropion, ectropion, lagophthalmos, epiphora, and muscle disturbances not included under diplopia. For such disabilities additional compensation shall be awarded, but in no case shall such additional award make the total compensation for loss in industrial visual efficiency greater than that provided by law for total permanent disability.

Compensation for loss in industrial visual efficiency, as provided for above, does not include compensation for any cosmetic defect, for mental or physical suffering, for cost of medical attention, or for time lost from gainful occupation during the period of treatment previous to final computation of compensation as provided for below. Additional compensation should be awarded for the various losses here enumerated when not specifically provided for by statute.

SECTION VIII. REGULATIONS FOR COMPUTING COMPENSATION

Compensation shall not be computed until all adequate and reasonable operations and treatment known to medical science have been attempted to correct the defect. Further, before there shall be made the final examination on which compensation is to be computed, at least three months shall have elapsed after the last trace of visible inflammation has dis-

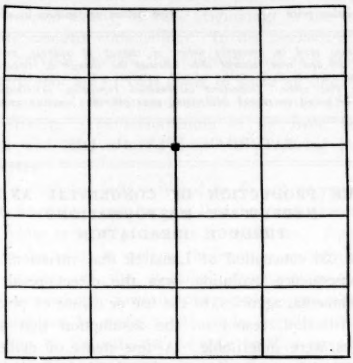


Chart 4.—Industrial motor field chart.

appeared, except in cases of disturbance of extrinsic ocular muscles, optic nerve atrophy, sympathetic ophthalmia, and traumatic cataract; in such cases, at least twelve months and preferably not more than sixteen months shall intervene before the examination shall be made on which final compensation is to be computed.

In cases of additional loss in visual efficiency, when it is known that there was present a preexisting subnormal vision, compensation shall be based on the loss incurred as a result of eye injury or occupational condition specifically responsible for the additional loss. In case there exists no record or no adequate and positive evidence of preexisting subnormal vision, it shall be assumed that the visual efficiency prior to any injury was 100 per cent.

NELSON M. BLACK.
ALBERT C. SNELL.
JAMES PATTON.
HARRY S. GRADLE.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION. W. A. PUCKNER, SECRETARY.

EXTRACT OF MALT (See New and Nonofficial Remedies, 1925, p. 209).

Loeflund's Malt Extract.—A preparation essentially similar to extract of malt, U. S. P.

Actions and Uses.—See Extract of Malt (New and Nonofficial Remedies, 1925, p. 209). Marketed as Loeflund's malt extract with calcium and Loeflund's malt extract with cod liver oil.

Manufactured by Ed. Loeflund & Co., G. m. b. H., Grunbach-Stuttgart (Germany) (Britt, Loeffler & Weil, New York distributor). No U. S. patent or trademark.

Loeflund's Malt Extract with Calcium: Calcium lactophosphate, 0.5 per cent., in Loeflund's malt extract.

Loeflund's Malt Extract with Cod Liver Oil: Norwegian cod liver oil, 33 per cent.; Loeflund's malt extract, 67 per cent.

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SATURDAY, JULY 11, 1925

THE PRODUCTION OF CONGENITAL AND HEREDITARY MALFORMATIONS THROUGH IRRADIATION

The old conception of Lamarck that variation, and in consequence evolution, was the direct result of environmental agencies, or the use or disuse of physiologic function, rested on the assumption that such changes were inheritable. A few items of evidence interpreted by some as supporting this hypothesis have been produced. However, after many years of negative results by experimental methods, and the accumulation of observational evidence indicating that structural changes induced in somatic tissues of the parents do not result in the production of offspring with similar or related abnormalities, lamarckism seems to have become an almost obsolete issue.[1] This generally accepted attitude was not fundamentally altered even when, in 1918, Guyer and Smith[2] reported that by injecting pregnant rabbits with antiserum made by immunizing fowls with rabbit crystalline lens, offspring were obtained with eye defects that were transmissible to subsequent generations. Here, apparently, a substance in the maternal blood had produced such changes in the germ plasm of the offspring that it became a character transmitted through heredity after the manner of a mendelian recessive; but the hereditary alteration does not depend on changes in the somatic tissues, in accordance with the lamarckian hypothesis. There has also been evidence that other, less specific, agents might so alter the germ plasm that a permanent alteration results and manifests itself in the form of inherited abnormalities. Alcohol, with its known toxicity for the germ cells, has seemed to have such effects both in man and in experimental animals. Irradiation, which so markedly attacks germ cells as well as embryonic cells and cells in active division, has long been known to lead to arrest of development or deformation of offspring when applied at certain stages of embryonic development, as well as to produce sterility when acting in adequate doses on the germ cells of either sex.[3]

In due time it was found that these injuries to the germ cells may, in some cases at least, lead to abnormalities that are transmitted to later generations as an inherited character. At first the useful fruit fly *Drosophila* furnished evidence of this sort, abnormal offspring being produced which continued to breed abnormal offspring. More striking results have been obtained by Bagg and Little,[4] who submitted to the roentgen ray healthy mice of known ancestry, which through many generations of inbreeding had produced no known abnormal offspring. They confirmed the observations of others, that irradiation of animals before mating may cause them to produce abnormal offspring, but much more important is the observation that when the offspring of irradiated mice are bred together, there may appear abnormalities in subsequent generations which, by properly selected breeding, may involve all the offspring. These defects are inherited as mendelian recessives, this being the usual rule with detrimental qualities; e. g., the tendency to cancer, according to the observations of Maud Slye. That the most conspicuous abnormalities have involved the eyes raises the question whether the inheritable eye defects obtained by Guyer and Smith with antilens serum depend on the immunologic specificity of the serum for the eye or resulted merely from a general principle that the factors in the germ plasm determining formation of the eyes are especially readily injured by harmful agents. However, these mice of Bagg and Little often showed other deformities, especially of the ears and feet, clubbing being sometimes marked. Subcutaneous extravasations of blood were often found in embryos and mice with deformities, and these authors suggest that the primary change is an abnormal development or defect of the blood vascular system in the embryos, leading to the local arrest or abnormality of development.

With all these evidences that exposure of parental germ cells to irradiation may lead not only to sterility but also to the formation of defective offspring comes now the possibility that the product of irradiated germ cells may be capable of transmitting deformities to future generations. This must give thought to all those who have the responsibility of giving treatment by irradiation. Little and Bagg[5] have already given warning of the danger of using radium or roentgen rays on persons who are likely to become parents, because of the possibility that defective offspring may result. Nevertheless, despite the admitted potential danger, so far the instances of actual fetal deformity that have resulted from irradiation of women previous

1. A full review on the inheritance of acquired characters is given by Detlefsen, J. A.: The Inheritance of Acquired Characters, Physiol. Rev. **5**: 244 (April) 1925.
2. Guyer, M. F., and Smith, E. A.: Studies on Cytolysins, J. Exper. Zool. **26**: 65, 1918; **31**: 171, 1920.
3. Bailey, Harold; and Bagg, H. J.: Am. J. Obst. & Gynec. **5**: 461 (May) 1923.
4. Bagg, H. J., and Little, C. C.: Am. J. Anat. **33**: 119 (March) 1924.
5. Little, C. C., and Bagg, H. J.: Am. J. Roentgenol. **10**: 975 (Dec.) 1923.

to conception seem not to have been numerous. Schmitt [6] has collected reports of 130 pregnancies following irradiation, thirty-six of which terminated in early abortions, largely attributed to uterine myomas or carcinoma. Of eighty-one children born at term, seventy-six survived, and three of these showed developmental defects, certainly not an alarming proportion. However, seven of the other children were somewhat defective in their later development, but none seem to have shown eye defects. It would seem, therefore, that on the basis of existing returns the actual danger of developmental defects from irradiation of child-bearing women is not so great as to constitute a contraindication to this form of therapy for conditions in which it is seriously needed, but the potential danger is real enough to discourage irradiation when the indications for its use are not urgent or when the prospects of actual benefit are at all doubtful.[7]

THE FUNCTION OF THE ENDOTHELIAL CELLS IN TUBERCULOSIS

The possibility that tubercle bacilli that have found lodgment in tuberculous foci in the body may become liberated into tissue spaces and lymphatic channels, and thus become disseminated widely, has long been recognized. A more extensive mode of distribution is afforded by a chance liberation directly into the blood stream. The commoner tendency, however, is for the micro-organisms to remain localized through the production of tubercles in connection with endothelial structures. The extensive phagocytic power of endothelial cells under a large variety of conditions is only gradually being appreciated. Until quite recently, phagocytosis was supposed to be a far more restricted function of cells and one exercised by decidedly fewer varieties of them than current evidence seems to indicate. Sabin [8] has pointed out that phagocytosis is a general property of cells to which an almost bewildering number of names have already been applied. Among them is a type of endothelial cell that reacts phagocytically to particulate foreign substances, to lipoid materials, and to a wide range of foreign bodies in the tissues. Permar [9] has recently pointed out that in aseptic inflammatory reactions the endothelial cell appears quite early and has a definite importance, because of its phagocytic activity toward the débris of cells and fibrin in the injured area. In infected injuries the early exudate contains some endothelial cells, but the polymorphonuclear leukocytes soon predominate. It is only when the acute reaction is subsiding that the endothelial cell again appears. In the later stages of the reaction it is quite prominent, as its phagocytic activities are essential to the progress of healing.

It appears that the tubercle bacillus also provokes the intervention of these active cells produced by the vascular endothelium. According to the investigations of Foot,[10] tubercles found in the lung, liver, spleen, kidney, lymph nodes, omentum, brain and meninges are composed chiefly of cells originating in the local capillary vascular endothelium. In the lesions of the central nervous system, the evidence indicates that a definite proportion of cells going to make up tubercles is to be traced to the endothelial leukocytes of the blood stream. The endothelium of the liver, bone marrow and lung is most active in producing these phagocytes.

The endothelial cells referred to do not necessarily remain fixed but may become detached and give rise to traveling cells of phagocytic propensities. Apparently in the adult as well as the embryo, endothelium keeps giving off the so-called clasmatocytes—cells highly specialized toward phagocytosis—in certain areas and can be made to do so by certain stimuli. According to Permar, the tubercle bacillus has thus been carried into the tissues from the finer air passages and alveoli by endothelial cells, in the same way that these cells carry particulate substances. Whether intracellular transportation also accounts for primary invasion of the intestinal tract is not certain, though it offers an explanation for the invasion of an intact mucosa. The endothelial cell may be responsible for the actual introduction of the micro-organisms into new tissues. Thus we have a contrast between dissemination of tubercle bacilli by intracellular and humoral distribution, respectively. As Permar summarizes the consequences, a knowledge of the various phases of endothelial cell reactions is essential to a comprehension of the anatomic tubercle and of the conglomerate tubercle. It is evident, he adds, that the endothelial reaction leading to localization of the tubercle bacillus is complicated by the fact that the endothelial cell also wanders for considerable distances in the tissues. Thus, intracellular transfer offers an explanation not only for the primary invasion of the micro-organism and the local spread to form the conglomerate tubercle, but also for the development of distant secondary foci, such as those in regional lymph nodes. Even bacilli in the blood stream or serous fluids presumably cannot long remain free, since not only wandering but also fixed endothelium is phagocytic for the tubercle bacillus.

6. Schmitt, Walther: Strahlenbehandlung und Nachkommenschaft, Klin. Wchnschr. **3**: 1358 (July 22) 1924.
7. Pemberton, F. A.: Childbearing After Radium and X-Ray Treatment, Surg., Gynec. & Obst. **39**: 207 (Aug.) 1924.
8. Sabin, F. R.: The Origin of the Cells of the Blood, Physiol. Rev. **2**: 38 (Jan.) 1922.
9. Permar, H. H.: The Function of the Endothelial Cell in Pathological Conditions, Especially in Tuberculosis, Am. Rev. Tuberc. **9**: 507 (Aug.) 1924.
10. Foot, N. C.: Studies on Endothelial Reactions, I, The Macrophages of the Loose Connective Tissue, J. M. Res. **40**: 354 (March 27) 1919; II, The Endothelial Cell in Experimental Tuberculosis, J. Exper. Med. **32**: 513 (Nov.) 1920; III, The Endothelium in Experimental Pulmonary Tuberculosis, ibid. p. 533; IV, The Endothelium in Experimental General Miliary Tuberculosis in Rabbits, ibid. **33**: 271 (Feb.) 1921; V, The Endothelium in the Healing of Aseptic Wounds in the Omentum of Rabbits, ibid. **34**: 625 (Dec.) 1921; VI, The Endothelial Response in Experimental Tuberculous Meningo-Encephalitis, ibid. **36**: 607 (Dec.) 1922.

THE PARATHYROID HORMONE—RETROSPECT AND PROSPECT

The significance of a hormone, elaborated by the parathyroid structures, for the metabolism of calcium, at least so far as the regulation of the content of this element in the blood is concerned, seems to be well established.[1] Measured by contrast with what has happened in most domains of scientific endeavor, progress in this field of study has been rapid as well as helpful. Only thirty-five years has elapsed since Sandstrom clearly identified the parathyroid tissue as an independent glandular structure, after it had long been regarded as a sort of "accessory thyroid."[2] Less than twenty years has intervened since it was intimated that calcium salts have a palliative effect on the tetany following ablation of the parathyroid glands; and not until 1913 was it clearly established by direct analysis that the blood in tetany has a lowered content of calcium. Meanwhile, various investigators in different places have interested themselves in the search for effective ways of securing prompt "regulation" of the calcium content of the blood in those conditions in which an upset in this factor may become responsible for pathologic consequences, among which tetany is an outstanding symptom.

It is not surprising, in view of the known facts, that attention should have been directed toward the discovery of some parathyroid component—a hormone—that might be concerned in the regulation of calcium metabolism through a specific control of blood calcium concentration. In the somewhat analogous case of the pancreatic hormone involved in the normal metabolism of sugar in the body there were numerous attempts to isolate the antidiabetic agent, attempts based on intelligent consideration of the demonstrated facts of the pathology of diabetes and the physiology of sugar utilization, before success in the separation of insulin was attained. As Macleod[3] has recently stated, there could be little doubt as to the existence of insulin in the pancreas; the problem—and for practical reasons a most important one—was to devise means for extracting it in a condition suitable for continued administration to diabetic patients. The brilliant success of Banting, Best, Collip and Macleod in solving the difficulties four years ago was in part built on the labors of a host of predecessors, among whom some also seemed to have the solution of the problem well in hand when the preparation of an effective insulin was announced.

Similarly, the promise of preparing an effective parathyroid product seems about to be fulfilled in various places. The studies of Collip[4] in Canada have attracted widespread attention in accord with their inherent merits.[1] They should not cause us to lose sight of the early attempts of Hanson[5] in this country to prepare an active extract of the parathyroid glands of animals. Collip himself has designated Hanson's work as "worthy of great commendation" and his clinical results as "indeed highly suggestive." Hanson has prepared an acid extract of bovine parathyroid, yielding his "hydrochloric X," which contains the agent that induces a raising of the calcium content of the blood in hypocalcemia and thereby can relieve tetany. Success has also attended the efforts of Fisher and Larson[6] at the University of Illinois College of Medicine. The most profound changes in response to the injection of potent parathyroid extracts noted by them were increases in viscosity, phosphates, calcium and nonprotein nitrogen of the blood. Like Collip, the Chicago investigators warn against the possible dangers of unwarranted therapy with the potent preparations, for symptoms of atonia, depression, diarrhea and dyspnea are readily induced by large doses of this extract.

1. The Parathyroid Hormone, editorial, J. A. M. A. **84**: 1499 (May 16) 1925.
2. A recent review of the literature has been published by Boothby, W. M.: Endocrinology **5**: 403 (July) 1921.
3. Macleod, J. J. R.: Insulin, Medicine **3**: 195 (Aug.) 1924.
4. Collip, J. B.: The Extraction of a Parathyroid Hormone Which Will Prevent or Control Parathyroid Tetany and Which Regulates the Level of Blood Calcium, J. Biol. Chem. **63**: 395 (March) 1925.
5. Hanson, A. M.: An Elementary Chemical Study of the Parathyroid Glands of Cattle, Mil. Surgeon **52**: 280 (March) 1923; Notes on the Hydrochloric X of the Bovine Parathyroid, ibid. **52**: 434 (April) 1923; The Hydrochloric X of the Bovine Parathyroid and Its Phosphotungstic Acid Precipitate, ibid. **54**: 76 (Jan.) 1924; The Hydrochloric X Sicca: A Parathyroid Preparation for Intramuscular Injection, ibid. **54**: 218 (Feb.) 1924; Parathyroid Preparations, ibid. **54**: 554 (May) 1924; Experiments with Active Preparations of Parathyroid Other Than That of the Desiccated Gland, ibid. **55**: 701 (Dec.) 1924; The Hormone of the Parathyroid Gland—Changes in the Blood Serum Calcium of Thyroparathyroidectomized Dogs Modified by the Bovine Hydrochloric X, Minnesota Med. **8**: 283 (May) 1925; The Hormone of the Parathyroid Gland, Proc. Soc. Exper. Biol. & Med. **22**: 560 (May) 1925.
6. Fisher, N. F., and Larson, E.: Experiments with Extracts of Parathyroid Glands, Proc. Soc. Exper. Biol. & Med. **22**: 447 (May) 1925.
7. The American Drug Manufacturers Association and the American Pharmaceutical Manufacturers Association.

Current Comment

THE QUANTITATIVE ACCURACY OF MEDICINAL TABLETS

THE JOURNAL, with the aid of the A. M. A. Chemical Laboratory, has called attention repeatedly to discrepancies between the actual composition and the claims made for various tablets and pills sold to the medical profession. Reports have been published of comprehensive investigations by L. F. Kebler, the Connecticut Agricultural Experiment Station, and the New Hampshire State Board of Health. These reports revealed the existence of a deplorable condition, since variations as high as 54 per cent. above and 70 per cent. below the label statements of composition were found. In two thirds of the tablets examined by the Connecticut Agricultural Experiment Station, the variation was greater than 10 per cent. Over a year ago G. W. Hoover, in charge of the drug control laboratories of the Bureau of Chemistry, Department of Agriculture, addressed one of the drug manufacturing associations concerning the findings of the government after wide survey of medicinal tablets, following which the two leading manufacturers' associations[7] voluntarily appointed a joint committee, known as the contact com-

mittee, to collaborate with the officials of the Bureau of Chemistry. During the past year this group has given a great deal of attention to the subject of hypodermic tablets. Physicians will welcome, therefore, a recent announcement of plans for controlling the degree of accuracy of hypodermic tablets, issued by the federal Bureau of Chemistry, in which is given the maximal permissible variations, ranging from 7.5 to 9 per cent., as suggested by the contact committee. The next study of this group will be on compressed tablets and tablet triturates. The fact that the pharmaceutical industry thus voluntarily collaborates with the government authorities in the establishment of standards is encouraging. Equally encouraging is the fact that the smaller firms, particularly most of those selling to dispensing physicians, are recognizing the necessity of employing not merely standard drugs and mechanical care in preparation, but actual chemical control. As THE JOURNAL has insisted for years, every firm engaged in selling drugs to physicians should have a competent scientific staff; this is one good step in that direction.

DUST DANGERS

Dirt has been defined as "matter out of place," and dust belongs in a similar category. It is the quality or character of these substances, as well as their abnormal location, that renders them respectively more or less objectionable; for we are beginning to realize that dusts are by no means alike in their harmful propensities. In the earlier years of the development of the modern science of bacteriology, the dangers of dusts were conceived of as residing in their content of viable bacteria that could be distributed by any chance gust of wind. Today, much consideration is being devoted to dusts as carriers of allergic substances. These may be pollens of grasses responsible for a large variety of distressing maladies, such as hay-fever or rose-cold; or they may represent epidermal detritus of animals, derivatives of the skin, hairs and feathers, which may serve to bring to the susceptible symptoms of asthma and of eczema, as well as of the perennial rhinitis. Nor is this all. There are also dusts associated with special industries and employments: stone dusts, coal dust, iron and steel dust, which are known to produce harm if they gain entrance in undue amount into the respiratory organs. The type of pneumonokoniosis that may be developed seems to depend on the factory, grinding shed, quarry or mine that is involved. Accordingly, there are the well known distinctions between anthracosis, siderosis and silicosis, for example. The relation of tuberculosis to dusts in the lungs has been much debated. Irrespective of the kind of mineral dust inhaled, sooner or later the same structural changes in the lungs are developed; namely, an increase in fibroconnective tissue or fibrosis. The proof of a direct connection between pulmonary tuberculosis and occupations leading to inhalation of dusts has often been attempted, but the arguments are not convincing. Landis [1] of the Henry Phipps Institute at the University of Pennsylvania has recently presented striking evidence that organic dust, in distinction from the particles of mineral origin, does not produce the condition known as pneumonokoniosis. His conclusion is based on necropsies made on persons employed in the textile industries in which vegetable fibers "hang like a cloud" in the workrooms. This does not mean that organic dusts cannot give rise to allergic phenomena or act as carriers of bacteria; but the incrimination of dust per se must hereafter be more specific. Inorganic dust can and does produce serious and disabling damage to the lungs. Other dusts need not be equally or at least similarly detrimental to health.

1. Landis, H. M.: The Relation of Organic Dust to Pneumonokoniosis, J. Indust. Hyg. 7:1 (Jan.) 1925.

THE MENACE OF HYDROGEN SULPHID

The mention of hydrogen sulphid, or sulphuretted hydrogen, brings memories of student days and of smells that were associated with disgust rather than danger. Yet this gas is in reality something more significant than a mere laboratory novelty to medical practice, for it occasionally becomes a menace in the industrial world. The miner recognizes hydrogen sulphid as "stink damp," and knows that it can become explosive when mixed with air in certain proportions. The same gas may annoy men entering sewers, or workmen active in a variety of industrial plants in which chemical processes are carried out on a large scale. Under these circumstances it joins the ranks of the volatile poisons such as hydrocyanic acid and arsin. Fortunately, the sulphid readily betrays itself by its disagreeable odor, though it should be noted that the sense of smell is not a reliable indicator for the concentration of the gas in the air. Thanks largely to the studies of Haggard [1] at Yale University, the outstanding facts about the toxicology of hydrogen sulphid are now available. They correct the commonly taught doctrine that the gas combines with the respiratory blood pigment hemoglobin under the usual conditions of intoxication. The formation of sulphemoglobinemia during life is limited to the rare condition in which the blood pigment is first entirely reduced. Hydrogen sulphid is readily oxidized to harmless or relatively nontoxic substances in the body. This is of enormous advantage in preventing cumulative or delayed effects. The outstanding features in acutely fatal cases are simply those of asphyxia. The heart may continue to beat after respiratory failure induced by the gas; consequently, resuscitation through prompt institution of suitable artificial respiration becomes a welcome possibility. Hydrogen sulphid is, strictly speaking, an irritant gas, so that delicate tissues exposed to it may suffer. The irritant action is not limited to the respiratory tract but may also be exerted on the eyes. Hence, prophylaxis suggests the wearing of goggles as well as suitable masks where the contamination of air with hydrogen sulphid cannot be kept at a low level by means of ventilation. Prolonged inhalation of a concentration of the gas even as low as 100 parts per million (0.01 per cent.) is reputed to induce symptoms of chronic intoxication. Fortunately, exposures of this sort are rarely attained outside the laboratory.

1. Haggard, H. W.: The Toxicology of Hydrogen Sulphide, J. Indust. Hyg. 7:113 (March) 1925.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ARIZONA

Hospital News.—The name of the Arizona Hospital and Sanatorium, Tucson, has been changed to the Tucson Hospital by the directors of the Tucson Hospital Association, which recently took over the operation of the hospital.

CALIFORNIA

Personal.—Col. Edward L. Munson, U. S. Army, chief surgeon ninth corps area, San Francisco, was guest of honor at a dinner, recently given by officers of the medical reserve corps and other Spokane physicians at the Spokane City Club. ——Dr. Walter M. Dickie has been reappointed to the state board of health. Dr. Dickie has served as secretary and executive officer of the board since 1920.

John Scott Barker Loses Appeal.—"Dr." John Scott Barker, owner of so-called "dope" sanatoriums in Los Angeles and Oakland, lost his appeal in the circuit court of appeals, June 15, and must serve five years in prison for violation of the Harrison Narcotic Law. Barker was arrested on a charge of violating the Harrison Narcotic Law in 1923 in Oakland.

Faculty Changes at Stanford University School of Medicine.—The dean of Stanford University School of Medicine, San Francisco, announces the following changes in the faculty for the year 1925-1926.

Dr. Rufus L. Rigdon has been retired as emeritus professor of genito-urinary surgery and appointed consultant in urology at Lane Hospital.

The following appointments have been made:

Dr. Ernest C. Dickson, professor of medicine, has been appointed acting executive of the department of public health and preventive medicine.

Dr. John F. Cowan, clinical professor of surgery.

Dr. Frank R. Girard, lecturer in surgery.

Dr. Clarence O. Sappington, lecturer in industrial hygiene.

Dr. James R. Dillon, associate clinical professor of surgery (genito-urinary) and acting head of the division of genito-urinary surgery.

Dr. Emile F. Holman, Western Reserve University, associate professor of surgery.

Dr. Philip H. Pierson, associate clinical professor of medicine (tuberculosis).

Dr. Harry A. Wyckoff, assistant professor of medicine.

Dr. Jay M. Read, assistant clinical professor of medicine.

Dr. Lloyd B. Dickey, instructor in medicine (pediatrics).

Dr. Robert F. Kile, instructor in medicine (radiology).

Dr. C. Frederic Fluhmann, instructor in obstetrics and gynecology.

Drs. Aime N. Fregeau, Merlin T. R. Maynard, Alfred A. Robinson, Lorenz J. Schermerhorn, Roland P. Seitz, Edward F. Stadtherr and Ernest K. Stratton, clinical instructors in medicine.

Drs. Albert V. Pettit and Hans von Geldern, clinical instructors in obstetrics and gynecology.

Drs. Otis A. Sharpe and Loren R. Chandler, clinical instructors in surgery.

DISTRICT OF COLUMBIA

Personal.—Dr. Warren P. Morrill, formerly superintendent of the Shreveport Charity Hospital, Shreveport, La., has been appointed superintendent of the Columbia Hospital for Women, Washington.——Brig. Gen. James D. Glennan, assistant surgeon general of the army, recently received a silver star citation for gallantry in action against Sioux Indians in 1890.——Miss Lucy Minnigerode has been selected by the International Red Cross Committee as the American recipient of the Florence Nightingale medal. During the World War, Miss Minnigerode was a member of the Red Cross unit assigned to Kiev, Russia, and later became director of the nurse corps of the U. S. Public Health Service. She is chairman of the Delano Memorial Committee and a representative of the American Nursing Association on the Joint Congressional Committee.

FLORIDA

Dr. Smith President of State Board.—Dr. Henry Mason Smith, Tampa, was appointed president of the state board of health by the governor, June 20, to succeed Dr. Calvin T. Young of Plant City, whose commission recently expired. The other members of the board are Dr. William D. Nobles, Pensacola and Charles H. Mann, Jacksonville.

GEORGIA

Society News.—The twenty-fifth annual meeting of the Chattahoochee Valley Medical and Surgical Association will be held at Warm Springs, July 14-15. There are fifty-three papers on the program. The annual dance of the association will be Tuesday evening and there will be an executive session of the association preceding adjournment, Wednesday afternoon.

HAWAII

Physician to Leper Colony Pensioned.—Dr. William J. A. Goodhue, for twenty-five years resident physician at the leper settlement on Molokai Island, was retired, June 30, on a pension. It is reported that at that time a successor to Dr. Goodhue had not been obtained.

ILLINOIS

Chiropractor Guilty.—Hamilton Mabie, a chiropractor of Belleville, was found guilty by a jury in the county court, June 24, on a charge of practicing without a license. Mabie's defense was that he started practicing before the 1923 law requiring chiropractors to be licensed was passed.

Personal.—Dr. Warner H. Newcomb, for several years health officer of Suffolk, Va., has been appointed health officer for Morgan County and also superintendent of Oak Lawn Sanatorium. Dr. Newcomb is a native of Illinois.——Stephen A. Forbes, LL.D., has been reappointed director of the Outlook Tuberculosis Sanitarium, Urbana.——Dr. Charles E. Shultz, Shirley, has been appointed city health director for Bloomington to succeed Dr. Harold B. Wood, resigned.

New Milk Laws.—A law becomes effective, September 1, which requires all milk pasteurizing plants, except those concerned exclusively with markets in cities of 500,000 or more people, to secure a certificate of approval from the state department of health. The certificates can be issued only after an inspection of the plant by a sanitarian, and milk dealers who do not employ the standard pasteurizing process will be prohibited from advertising their products as pasteurized.——Another new law relating to milk provides, among other things relating to tuberculin testing, that municipalities may prohibit the sale of milk from any herds that have not been tuberculin tested.

Supreme Court Affirms Conviction of Chiropractor.—In a decision, June 20, the Illinois Supreme Court upheld the constitutionality of the Medical Practice Act of 1923 and affirmed the $300 fine of Chiropractor Max W. Walder, Danville, for practicing without a license. The contention of the defense was, it is reported, that chiropractic is a useful and harmless practice which cannot be regulated by the state. The court said that a method of treating human ailments cannot be both useful and harmless, for if it is sufficiently efficacious to be useful, it is at the same time capable of producing harmful results when practiced without care or skill. This is said to be the first case of a chiropractor disbarred from practice without a license which has been brought to the attention of the supreme court of Illinois.

Chicago

Hospital News.—The Baptists of Chicago are making plans to purchase the Metropole Hotel at Michigan Boulevard and Twenty-Third Street, to be converted into a hospital.

Farewell Banquet to Dr. Lewis.—About 200 physicians gave a banquet at the Drake Hotel, June 23, to Dr. Dean Lewis, who will leave in the near future for Baltimore, where he has accepted the chair of surgery at Johns Hopkins University Medical School. Dr. James B. Herrick was toastmaster; among the speakers were Dr. Gotthelf Carl Huber, University of Michigan Medical School, Ann Arbor, Amos Alonzo Stagg, University of Chicago, and Drs. Allen B. Kanavel, Vernon C. David and George F. Dick.

INDIANA

Personal.—Dr. Thomas E. Courtney has been appointed to complete the unexpired term on the board of health of Indianapolis of Dr. William H. Foreman, resigned.

Dr. Spickermon Sentenced.—Dr. Harry R. Spickermon, Muncie, pleaded guilty, it is reported, to violation of the Harrison Narcotic Law, June 20, and was sentenced to two years in the federal penitentiary at Leavenworth, Kan., and fined $250 and costs. The prosecution brought out evidence in the trial, it is said, to the effect that Dr. Spickermon had helped conceal the bandit Gerald Chapman when the latter

was in Muncie, and that it was Spickermon's house that Chapman was leaving when he was captured.

Funds Available for Medical School.—The board of trustees of Indiana University, at a meeting, June 25, made available sums totaling $700,000 for improvements in the medical school and a university library. The funds to be used for the medical school were derived from a gift of $375,000 from William E. Coleman, Indianapolis, a gift of $6,000 from the Eli Lilly Company of Indianapolis, and from the sale to the state of the building formerly used by the medical college, for $100,000. Mr. Coleman's gift for the erection of a woman's hospital in Indianapolis will be under the direct supervision of the medical college. The Lilly gift of $6,000 is for special research work in surgery, and the $100,000 derived from the sale of the old building will go into the general sinking fund of the University Medical College.

IOWA

Personal.—Dr. George H. Scanlon has been appointed city health physician for Iowa City to succeed Dr. Theodore L. Hazard.

Medical Arts Building.—The construction of a seven story building at Burlington, costing about $300,000, to be devoted to physicians and dentists' offices, will be completed early next spring. Dr. Amos J. Thornber is president and H. L. Madison, D.D.S., vice president, of the company.

Society News.—Dr. Don M. Griswold, associate professor of preventive medicine and hygiene, State University of Iowa College of Medicine, addressed the Dubuque County Medical Society, Dubuque, June 16, on "The Private Practice of Preventive Medicine"; Dr. John L. Tierney, professor of internal medicine, St. Louis University School of Medicine, St. Louis, on "Endocrinology"; Dr. Fred M. Smith, professor of internal medicine, State University of Iowa College of Medicine, on "Cardiac Diseases"; Dr. Nathaniel G. Alcock, professor of genito-urinary surgery State University of Iowa College of Medicine, on "Treatment of Early Syphilis," and Dr. Howard L. Beye, professor of surgery, State University of Iowa College of Medicine, on "Analysis of One Hundred Cases of Empyema."

KENTUCKY

Fund to Care for Crippled Children.—The Kentucky Society for Crippled Children is conducting a drive to raise $100,000 for the care of crippled children within the next year. The state legislature appropriated $10,000 for the work of the society which became available, July 1. Nine clinics in various sections of the state have been held this summer and there will be three more. It is reported that 115 children examined at these clinics have been placed in hospitals for treatment.

MARYLAND

Personal.—Dr. William S. Love, Jr., a member of the staff of the University Hospital, has received an appointment as assistant in medicine in the Lewis Clinic at the University Hospital School, London. Dr. Love will leave for England in September, his appointment being effective for one year from October 1.

Branch Tuberculosis Association Formed.—The Frederick County Branch of the Maryland Tuberculosis Association was formed at a special meeting and luncheon held at the Francis Scott Key Hotel, Frederick, May 4. The new organization will function throughout the year, supporting the Tuberculosis Clinics, the Modern Health Crusade, and other activities of the campaign against tuberculosis.

Public Health Meeting Held in Cumberland.—A community public health meeting, the first of its kind, was held in Cumberland, June 28. In an open-air auditorium, about 5,000 people heard the lecture with the aid of amplifiers. Dr. Joseph C. Bloodgood, Baltimore, spoke on "Cancer: A Preventable and Curable Disease." A concert by the municipal band preceded the address.

State Laboratory Facilities.—The state department of health has extended its facilities until it is possible for every physician to have the assistance of the laboratory in the treatment of his cases. Containers for specimens are supplied physicians, and the reports of examinations in urgent cases are made by long distance telephone. There is a central laboratory at the state department of health offices in Baltimore, and branch laboratories at Cumberland, Hagerstown and Frederick for counties along the northern border; at Hurlock for the eastern shore counties, and a recently opened branch at the Hygienic Laboratory in Washington for counties in southern Maryland. No charge is made to physicians for services in any of these laboratories.

MASSACHUSETTS

Personal.—Dr. Ralph M. Chambers has been appointed superintendent of Taunton State Hospital to succeed Dr. Ransom A. Greene, who has been transferred.

Dr. Calderwood Resigns.—Dr. Samuel H. Calderwood, for thirty years a member of the state board of registration in medicine, has submitted his resignation to the governor. Dr. Calderwood has acted as chairman of the board for several years.

MICHIGAN

Chiropractor Fined.—A chiropractor of Constantine by the name of Walter Huber was fined $100 and costs in circuit court at Centreville, June 5, it is reported, following a plea of guilty to a charge of practicing medicine without a license.

President of University Appointed.—Clarence C. Little, LL.D., since 1922 president of the University of Maine, has been elected president of the University of Michigan, Ann Arbor. Dr. Little is a graduate of Harvard; in 1917-1918 he was associate in comparative pathology at Harvard Medical School, and research associate from 1919 to 1922. He was assistant director of the station for experimental evolution of the Carnegie Institution, Washington, D. C., previous to his appointment as president of the University of Maine.

Diphtheria Prevention.—Although toxin-antitoxin has been provided free of charge by the state for the last two years, few immunizations have been done. There were 471 deaths from diphtheria last year in Michigan and more than 6,000 cases. The state department of health now urges county medical societies and health authorities to cooperate with practicing physicians and commissioners of schools to eradicate diphtheria by means of immunization by toxin-antitoxin. Local authorities have conducted immunization campaigns in twenty counties, and the state department of health cooperating with local organizations in four.

MISSOURI

Personal.—The honorary degree of D.Sc. was conferred on Dr. Willard Bartlett, St. Louis, by his alma mater, Illinois College, June 10.——Dr. Thomas A. Kyner, Kansas City, has been appointed superintendent of the General Hospital to succeed Dr. John M. Frankenburger, resigned, because of ill health.——Governor Baker has reappointed Dr. Cortez F. Enloe, Jefferson City, director of the board of penal institutions, for a term ending June 19, 1929.

Promotions at St. Louis University.—Dr. William W. Graves, for a number of years chairman of the department of neurology at the St. Louis University School of Medicine, has been appointed director of the department; Drs. Louis Rassieur and Max W. Myer have been advanced from the rank of associate professors of surgery to professors of surgery; Dr. Charles F. Sherwin from instructor in surgery to assistant professor of surgery, and Dr. Harvey D. Lamb from instructor in ophthalmology to assistant professor of ophthalmology.

NEW JERSEY

State Medical Election.—At the annual meeting of the New Jersey State Medical Society, Atlantic City, June 17, Dr. Lucius F. Donohoe, Bayonne, was elected president; Drs. James S. Green, Elizabeth, Walter P. Conaway, Atlantic City, and Ephraim R. Mulford, Burlington, vice presidents; Dr. Elias J. Marsh, Paterson, treasurer; Dr. John Bennett Morrison, Newark, recording secretary, and Dr. William J. Carrington, Atlantic City, corresponding secretary.

Two Lepers in Newark Public School.—Hale and Frank George, 11 and 13 years old, pupils of the Avon Avenue public school in Newark, have been found to be suffering from leprosy, it is reported, and have been isolated pending action by the federal government. The parents came from Bermuda six years ago. There is no evidence of leprosy in other members of the family. Following a conference of teachers at the school, the superintendent and the commissioner of health of Newark, the equipment of the school, comprising books, manual training articles, pencils, etc., valued at $2,000, were burned. About 1,500 pupils attend the school.

NEW YORK

Alumni News.—The Alumni Association of the Long Island College Hospital, Brooklyn, held its annual meeting, June 2. Dr. Augustus D. Harris was elected president; Dr. John B. D'Albora, vice president, and Dr. Joseph Raphael, secretary. A permanent committee was organized to administer the John C. Cardwell research fund, which will be used for research work in the laboratory department of the college.

Purchase of Lincoln Hospital.—The committee of the whole of the board of estimate has authorized the purchase of Lincoln Hospital, Bronx, for $750,000. The board took this action rather than incur a greater expense in building a city hospital in that district. The trustees of Lincoln Hospital recently announced that it was unable to meet running expenses, and unless taken over by the city would have to close.

Personal.—Dr. Henri F. Mace, Walton, has been appointed assistant medical inspector for rural schools of the state department of education, to succeed Dr. Willard T. Rivenburgh, resigned.——Dr. Elmer E. Larkin resigned from the state board of parole, effective July 1. He has accepted the position of physician at Dannemora Prison.——The Rockefeller Foundation has awarded fellowships to Drs. Manuel Balado, Mayo Foundation, Rochester, Minn., and J. T. Lewis of the Physiology Institute, attending Harvard University. Both physicians are from Argentina.

Report of Counsel for State Society.—George W. Whiteside, counsel for the Medical Society of the State of New York, reported to the house of delegates at the recent annual session that 181 suits were instituted between March, 1924, and April, 1925, of which 129 had been disposed of, seven settled, ninety-two dismissed, discontinued or tried (verdict for defendant), and thirty marked off the active list as dormant cases; in none was there a verdict for the plaintiff. Mr. Whiteside personally attended or was represented at each meeting of the council and executive committee during the year.

Staten Island Mental Health Survey.—A mental health survey of 3,000 Staten Island school children, made by the National Committee for Mental Hygiene, revealed that there were marked physical, mental and social handicaps; that a large number of the children need mental hygiene service; that the facilities for treating mental health problems are few, and that there is what seems to be "a thyroid district" dependent on the local water supply. Of the children examined, only 40.3 per cent. were shown to have average intelligence and, excluding the continuation and vocational schools, 3.6 per cent. of them were feebleminded, 9.2 per cent. were of borderline intelligence, 16.8 per cent. belonged to the dullard group, 43.6 per cent. were of average intelligence and 26.1 per cent. were of superior intelligence. In the continuation and vocational schools, a much larger percentage were mentally subnormal.

New York City

Fund for Indigent Women.—Mrs. Job E. Hedges, together with friends of her late husband, has established a fund to be known as the Job E. Hedges Memorial Fund at the New York Post-Graduate Hospital for the relief of indigent women who require hospital care. It will be under the direction of Dr. Walter T. Dannreuther.

Bellevue Hospital to Be Modernized.—Of the additional $3,250,000 appropriated by the board of estimate, June 16, to modernize Bellevue Hospital, $3,000,000 will be expended for a new building for outpatient clinics which will furnish facilities for 1,500 patients a day. The Municipal Lodging House on East Twenty-Fifth Street will be rebuilt and used to quarter the psychopathic ward.

Women Physicians' Meeting.—The Institute Fraternity, a national organization of women physicians, held its twenty-first annual meeting, June 23, at the Biltmore Hotel, under the presidency of Dr. Cornelia Chase Brandt. Dr. Mary E. Hanks, founder and treasurer of the loan fund used to aid women who desire medical education, stated that five young women are now being educated for the practice of medicine by the loan fund, which amounts to about $10,000.

New Laboratory at Kings County Hospital.—The board of estimate appropriated $500,000, July 1, for a new laboratory at the Kings County Hospital in Flatbush. The proposed laboratory is regarded as the first step in a broad medical educational plan for Brooklyn in connection with the Long Island Medical College. Among those who appeared before the board in behalf of the appropriation were Bird S. Coler of the department of public welfare; Dr. John E. Jennings, president, Kings County Medical Society; Dr. John O. Polak, professor of obstetrics and gynecology, Long Island Medical College, and Dr. Joseph Tenopyr, chief surgeon at the Kings County Hospital.

Hospital News.—Property acquired by the Williamsburgh Hospital on South Ninth Street for the proposed site of a new hospital and nurses' school has been sold for $80,000. Cost of construction made the project inadvisable.——The Public Health Station on Coney Island boardwalk was opened for the summer season, June 22, and the other stations maintained at Rockaway Beach and South Beach were opened, July 3.——St. Elizabeth's Hospital, on West Fifty-First, will erect a group of hospital buildings at Fort Washington Avenue and One Hundred Ninetieth Street on eleven lots.——Frederick D. Green, general secretary of the United Hospital Fund for the last fifteen years, has retired.——The Children's Aid Society formally opened its new convalescent home for boys at Valhalla, June 27. Fifty boys who have been receiving treatment in New York hospitals will be installed at the home. The home is the gift of Dunlevy Milbank and includes a 63 acre farm and a modern building large enough to accommodate 500 boys a year. It is equipped with sun parlors and sleeping porches.

Changes in Staff of Rockefeller Institute.—The board of scientific directors of the Rockefeller Institute for Medical Research announces, among others, the following appointments: Members: Winthrop J. V. Osterhout, Ph.D., and Dr. Florence R. Sabin. Assistants: Drs. Charles A. Doan, Philip Finkle, Charles H. Hitchcock, Philip Levine, Richmond L. Moore, Ralph S. Muckenfuss, and Richard E. Shope. Drs. David Davidson and Philip Reichert have been promoted from fellows to associates. The following, hitherto connected with the institute, have accepted appointments as indicated after their names: Dr. Stuart Mudd, assistant professor of experimental pathology, Medical School of the University of Pennsylvania, and associate in pathology, Henry Phipps Institute for the Study, Treatment and Prevention of Tuberculosis; Dr. Christopher H. Andrews, assistant to Prof. Francis R. Fraser, Medical Unit, St. Bartholomew's Hospital, London, England; Dr. Douglas Boyd, Jr., assistant resident in surgery at Lakeside Hospital, Western Reserve University, Cleveland; Dr. Robert Elman, assistant in surgery, department of surgery, Washington University Medical School, St. Louis; Dr. Joseph H. B. Grant, house officer in pediatrics, Johns Hopkins Hospital; Dr. Charles Philip Miller, Jr., assistant professor of medicine, Graduate School of Medicine, University of Chicago; Dr. Waro Nakahara, associate pathologist, Government Institute for Infectious Diseases, Tokyo Imperial University, Japan, and research associate, Institute of Physical and Chemical Research of Tokyo; Dr. David T. Smith, pathologist, New York State Hospital for Incipient Tuberculosis, Ray Brook, N. Y.; Dr. Elmer L. Straub, Jr., assistant resident pathologist, University of Louisville, Ky.; Dr. Chester M. Van Allen, assistant professor of surgery, Graduate School of Medicine, University of Chicago.

NORTH CAROLINA

Hospital News.—Mr. B. N. Duke has donated $15,000 to construct a ward of ten beds for crippled negro children at the North Carolina State Orthopedic Hospital, Gastonia. Construction will begin shortly.——The Maria Parham Hospital was opened at Henderson, July 2, receiving ten patients that day. It will be conducted by members of the local medical profession as a general hospital.

State Board Reappointments. — Governor MacLean announces the reappointment to succeed themselves as members of the state board of health, for terms of six years, Dr. Richard H. Lewis, Raleigh, and E. J. Tucker, D.D.S., Roxboro. Dr. Lewis' original appointment was in 1884, since which time he has been continuously a member of the board and secretary from 1892 to 1909. Dr. Tucker was appointed six years ago.

Narcotic Violations.—In the federal court at Durham, last week, the following physicians were found guilty of violating the Harrison Narcotic Law and fined: Dr. Edwin H. Bowling, $500; Dr. Needham P. Boddie, $250; Dr. Ira J. Stoner, $250; Dr. William A. Strowd, $250. A mistrial resulted in the case of Dr. Elmar S. Waring, and a new trial at Elizabeth City was ordered by the court. The members of the state board of medical examiners in session at Raleigh attended the hearings.

Commission to Determine Duty to Feebleminded.—Following the resignations of Drs. Charles B. McNairy and William A. Newbold of the State School for Feeble-Minded, Kinston (THE JOURNAL, July 4, p. 44), the governor announces that he will shortly name a special commission headed by Dr. Watson S. Rankin, formerly secretary, state board of health, to determine the proper scope and character of the work the state should undertake relative to its feebleminded. The other members of the commission will include physicians and laymen.

OHIO

Committee on Public Education.—The house of delegates of the Ohio State Medical Association unanimously adopted at Columbus a resolution empowering council to appoint, or to act as, a committee on public education.

Typhoid Due to Wells.— Eighteen cases of typhoid in Bellefontaine were reported, June 30, to have been traced to two roadside wells near that city which had been found polluted. Sixteen of these cases were said to be in boy scouts who had drunk water from these wells while hiking.

Health Officers' Meeting.—Dr. Harry F. Rapp, Portsmouth, was elected president of the Ohio Public Health Association at the recent annual meeting, Columbus. Resolutions were adopted at this meeting opposing the establishment of a separate board of examiners for chiropractors, and another one favoring the restoration of the appointment of the state director of health by the public health council.

The Chiropractic Initiative Proposition.—As the proposal now stands, submitting to the people of Ohio at the November election the question of a separate licensing board for chiropractors is opposed by all earnest public health groups and by the Licensed Chiropractor Society of Ohio as well. The *Ohio State Medical Journal* says that the provisions of the proposal would permit the so-called "National Board of Chiropractic Examiners, a paper organization," sponsored by the Palmer School of Chiropractic, to grant licenses by reciprocity; that is, this particular school would be able to set the standards for chiropractors in Ohio. The initiative bill was rejected by the general assembly, February 26, and a supplementary petition filed with the secretary of state, May 29, two days after the expiration of the ninety day period provided by the constitution of the state. If voted on favorably in November by the people, this proposal would admit chiropractors to all the privileges of physicians, destroy the value of vital statistics, abolish the single board of licensure and allow the state to be overrun by a horde of cultists.

OKLAHOMA

Hospital News.—A new $50,000 building for the American Hospital at Picher is being constructed. Dr. E. Albert Aisenstadt is the chief surgeon and owner.——The Hayden-Carroll Private Hospital at Tulsa was recently opened; Dr. Elmer Forrest Hayden is in charge.

Opinion on Use of Passes.—Following a request for an opinion, the attorney general advised, June 19, that, among others, members of the state board of medical examiners may continue to ride on railroads on passes if they are in part payment for services rendered as a matter of private business. There is a constitutional provision that prohibits state officers from riding on free passes.

OREGON

Society News.—Dr. Wilson R. Adams, Medford, was elected president at the thirty-fourth annual meeting of the Southern Oregon Medical Association, Grants Pass, recently, and Dr. William W. P. Holt, Medford, secretary-treasurer.

University Offers Hospital Site.—The University of Oregon Medical School, Portland, has offered a 15 acre tract on Marquam Hill to the federal government as a site for the Veterans' Bureau hospital. Government officials and representatives of civic and official organizations of Portland recently inspected the site, which is in proximity to the County Hospital, the Doernbecher Hospital and the medical schoo,. The last Congress appropriated $1,350,000 for a Veterans' Hospital.

PENNSYLVANIA

Society News.— Dr. Samuel Calvin Smith, Philadelphia, addressed the Luzerne County Medical Society at the regular May meeting on "Examination of the Heart."——Dr. Grover W. Wende, professor of dermatology and syphilology, University of Buffalo School of Medicine, Buffalo, gave an illustrative lecture before the Westmoreland County Medical Society, Greensburg, recently on "The Differential Diagnosis of Syphilis and the Common Skin Diseases."——Dr. Franklin A. Stevens, Jr., New York, addressed the Northampton County Medical Society, Easton, on the "Etiology, Prevention and Treatment of Scarlet Fever."

Philadelphia

Personal.—Dr. Hubley R. Owen, chief police surgeon, has been granted a leave of absence to make a study of the police retirement systems in Paris and London.

Milk Law Violations. — Fourteen restaurant proprietors have been fined $25 and costs by Magistrate Beaton for violating the law which requires that milk be served to restaurant patrons in the original container.

Health Lecturers.—The Philadelphia Health Department has organized a corps of health lecturers which includes Dr. Charles J. Hatfield, Dr. Ward Brinton, Dr. Henry R. M. Landis, Dr. James M. Anders and Dr. John D. McLean.

Baby Clinic.—A baby clinic, sponsored by members of the Community Mothers' Council of Olney, was opened, July 2, at the Morrison School, Third and Duncannon Avenue. It will be open each Thursday. Dr. Harry W. Goos is in charge.

SOUTH CAROLINA

Personal.—Dr. Thomas Grange Simons, professor of materia medica in the Medical College of the State of South Carolina, received the degree of Doctor of Laws from the College of Charleston at its recent commencement.——Dr. Francis N. Andrews has been elected county health officer for Marion County to succeed Dr. Wallace L. Poole, who goes to Gaffney to take up similar work.——The governor has appointed Drs. Frank M. Lander, Williamston, and Joseph T. Taylor, Adams Run, as members of the state board of medical examiners.

TENNESSEE

Trustees Approve Building Plans. — The trustees of the University of Tennessee approved, June 24, the contract for the first of a series of buildings for the medical college to be erected in Memphis. This building, which will cost about $350,000, will be the first step in the expansion program of the medical school made possible by recent legislation, and will house the departments of anatomy, chemistry and physiology. The site for the structure is on Monroe Avenue south of Eve Hall.

TEXAS

Society News.—Arthur Black, D.D.S., dean, Northwestern University Dental School Chicago, addressed a joint meeting of the El Paso County Medical Society and the Southwestern Dental Association, recently, on "Mouth Infections in Relation to General Health."——Dr. Benjamin H. Orndoff addressed the Harris County Medical Society, May 9, on "The Diagnosis and Significance of the Pathologic Appendix."——The Tarrant County Medical Society, Fort Worth, May 19, considered two sets of plans for a Medical Arts Building for that city and adopted the recommendations of the building committee, authorizing the committee to contract with a company they recommended for the construction of the Medical Arts Building at Tenth and Cherry streets. The society also adopted a motion disapproving the reckless speeding of ambulances in the city.

The Publicity Campaign.—In the report of the Council on Legislation and Public Instruction to the House of Delegates of the state association, the council said that its most important duty was to launch the publicity and educational campaign which had been under discussion for several years and which was unanimously ordered by the House of Delegates the year before. A speakers' bureau was organized and an itinerary prepared covering the principal centers of the state. The speakers were assigned to localities beyond their sphere of professional influence as far as possible, and no speaker was sent to a community without the consent and agreement of the county society holding jurisdiction. A standard outline of a public health address was prepared by the council and illustrative items were furnished. The speakers were allowed almost unlimited latitude, the only fixed requirement being a discussion of the underlying principles of the practice of medicine, the fairness of the medical practice act and the necessity of its enforcement from the standpoint of the public. The fixed purpose of the address was to show the public the value of scientific medicine over

the pseudoscientific variety. An advertising agency was employed to plan newspaper publicity, the advertisements being carefully revised by the council. According to incomplete reports, 35,000 people were spoken to directly during the campaign and many times that number reached by newspaper advertising. Of the total of more than $16,000 expended on the campaign, the board of trustees appropriated about $7,000 from the general fund. The newspaper advertising campaign cost $5,608.36; the overhead, excluding that part of the general office expenses made necessary by the campaign, amounted to about $9,500; the traveling expense of speakers amounted to about $600. The board of trustees, in its report, said "that from whatever angle the endeavor is viewed, it was an economic and financial success. . . . We feel that both the medical profession and the public have been given an insight into the relative values of medical service that will redound to the benefit of all concerned, and that as time goes on it will be more evident to the casual observer that both the medical profession and the dependent public will be greatly benefited by a mutual and complete understanding such as this campaign will eventually produce."

VIRGINIA

Society News.—At the recent semiannual meeting of the Piedmont Medical Society, Charlottesville, Dr. Wylie C. Mason, Gordonsville, was elected president; Drs. Frank C. McCue, Charlottesville, and Thomas E. Patteson, Ransons, vice presidents, and Dr. Lewis Holladay, Orange, secretary-treasurer.——Dr. Halstead S. Hedges, Charlottesville, was elected president of the Virginia Society of Otolaryngology and Ophthalmology; Dr. Clifton M. Miller, Richmond, vice president, and Dr. Emanuel U. Wallerstein, Richmond, secretary-treasurer.

The John Horsley Memorial Prize.—Dr. John Shelton Horsley, Richmond, has established a prize at the University of Virginia to be awarded every two years for a thesis on some subject in general surgery. It amounts to two years' interest on $10,000 in 5 per cent. bonds, or about $1,000. The object of the prize is to stimulate interest in the scientific aspects of surgery, particularly the underlying biologic principles. The prize will be awarded biennially at the commencement exercises of the university by a committee consisting of the dean and the professors of surgery, pathology, physiology, biochemistry, and histology and embryology. All graduates of the medical department of the University of Virginia of not more than fifteen years' standing are eligible. Theses should be addressed to the dean not later than February 1 of the year in which the prize will be awarded. The first award will be in June, 1927.

WISCONSIN

Smallpox Quarantine Removed.—The quarantine order issued by the state board of health, May 22, barring unvaccinated persons from coming to or going from certain districts in Milwaukee, has been rescinded by the board. It is reported that the campaign for vaccination in Milwaukee has brought the smallpox epidemic to an end.

Personal.—Dr. John J. Seelman, Milwaukee, has been appointed a member of the state board of health to fill the unexpired term of Dr. Edward S. Hayes, Eau Claire, resigned.——Marquette University, Milwaukee, conferred the honorary degree of doctor of science in hospital administration on Dr. Malcolm T. MacEachern, Chicago, and Dr. Sigismund S. Goldwater, New York, at the recent commencement.——Dr. Edith Haigh-Stevens, Madison, has been appointed to succeed Dr. George H. Ripley, deceased, as a member of the state board of medical examiners.——Dr. John M. Dodd received the honorary degree of doctor of science recently from Northland College, Ashland.

Governor Kills Sterilization Bill.—Governor Blaine announced, June 27, that he had vetoed the bill which would have given the board of control power to sterilize mentally afflicted persons on their discharge from state institutions. The bill, it is reported, would have required every person discharged from an institution for the insane and feebleminded to be subjected to examination; if it was determined after a hearing that public welfare would be benefited by sterilization of the individual, the operation would be ordered even though the patient and relatives protested. The governor considered that this measure would cause people to hesitate to enter state institutions, that the knowledge of an impending operation on discharge would counteract any treatment they might receive, that it would cause feebleminded or insane patients, who were financially able, to seek treatment in private hospitals, and that wealthy persons would thus escape sterilization while the poor would be subjected to it.

CANADA

Personal.—Dr. Thomas S. Cullen, Johns Hopkins Hospital, Baltimore, addressed the clinic luncheon at the Western Hospital, Toronto, May 1.——Dr. Joseph A. Bell has been appointed health officer of Sarnia.

Hospital News.—The Lake Edward Sanatorium, located about 100 miles north of Quebec in the Laurentian Mountains, has awarded a contract for a new wing, which will cost $117,000. Whereas the institution has a capacity for sixty tuberculous patients, with the new wing the capacity will be increased by seventy. Dr. J. A. Couillard has been director of the sanatorium for twelve years.

Dr. McCrae Receives Gold-Headed Cane.—At the annual reunion of the House Staff Association of the Toronto General Hospital, Toronto, recently, Dr. John N. E. Brown, former superintendent of the hospital, presided and practitioners from all parts of the province attended. The historic gold-headed cane was presented—in absentia—to Dr. Thomas McCrae. The Toronto General Hospital gold-headed cane is a copy of the original gold-headed cane and was presented to the association by Hon. P. C. Larkin, high commissioner. A replica of the gold-headed cane in silver was presented to Dr. Robert H. Robinson of Toronto, who is now the oldest living ex-house officer, having served as an intern fifty-five years ago.

GENERAL

Honorary Degrees.—Amherst College has conferred honorary degrees of doctors of science on Dr. Robert T. Miller, Jr., associate professor of surgery, Johns Hopkins University Medical Department, Baltimore, Dr. George G. Sears, professor emeritus of clinical medicine, Harvard University Medical School, Boston, and Dr. Edwin St. J. Ward, dean of the medical faculty of the American University, Beirut.

Ethyl Gasoline Committee Meeting.—The first meeting of the committee chosen by Surgeon General Cumming, U. S. Public Health Service, to investigate the possible health hazards in connection with the use of tetra-ethyl gasoline met at Washington, June 29. The members of the committee requested to proceed to the conference are published under Government Services on page 125 of this issue of THE JOURNAL.

Yokohama Hospital Appeals for Funds.—The International Committee of the Yokohama General Hospital has appealed for funds to assist the 4,000 American, British and French residents of that city to rebuild the hospital, which was destroyed in the earthquake and fire of 1923. Plans call for a fully equipped hospital costing $100,000, a nursing school and a research laboratory. The new building will be erected on the site of the old one.

New Bedford Holds Automobile Fatality Record.—In the report of automobile fatalities in cities of 100,000 or more by the Department of Commerce, Washington, D. C., New Bedford, Mass., holds the record for 1925 with only one death up to June 20. There were no fatalities for the eight weeks ending June 20, in Fall River, Lynn and Somerville, Mass., and Yonkers, N. Y. In fifty-seven cities with an aggregate population of 27,000,000, there were 2,093 automobile fatalities from January 1 to June 20, reported, as contrasted with 2,016 in the same period in 1923. So far this year, the report states, New York City has reported 425 automobile fatalities; Chicago, 254; Philadelphia, 116; Los Angeles, 108, and Cleveland, 104.

Society News.—At the ninth annual meeting of the Association for the Study of Internal Secretions, Atlantic City, May 26, J. B. Collip, Edmonton, Alta., Canada, was elected president; Drs. Frederick S. Hammett, Philadelphia, and Eugene F. Du Bois, New York, vice presidents, and Dr. Francis M. Pottenger, Monrovia, Calif., secretary-treasurer.——At the meeting of the Pacific Northwest Medical Association, Portland, Ore., June 29-July 1, Dr. Edward M. Larson, Great Falls, Mont., was elected president; Dr. James L. Stewart, Boise, Idaho, president-elect; Drs. Homer J. Davidson, Seattle, and Charles H. Vrooman, Vancouver, B. C., vice presidents, and Dr. Frederick Epplen, Spokane, Wash., secretary-treasurer. The next meeting will be held in Glacier National Park.

Bequests and Donations.—The following bequests and donations have been announced recently:

The Lenox Hill Hospital, New York, $40,000, by the will of the late Frederick Wallman.

The New York Foundling Hospital, $1,000, by the will of the late Sarah E. Fox.

Reconstruction Hospital, New York, $100,000, by the will of the late Marianna Cook MacDougall.

The Montefiore and Mount Sinai hospitals, New York, each $10,000, by the will of the late Samuel W. Rice, and the Hospital for Joint Diseases, the Crippled Children's After-Care and Convalescent Home and the Beth Israel Hospital, each $2,500.

The Bloomingdale Hospital for Nervous and Mental Diseases, White Plains, N. Y., an anonymous gift of $100,000 for the erection of cottages for its personnel.

The Decatur County Memorial Hospital, Greensburg, Ind., $2,000, by the will of the late Louisa G. McLaughlin of that city.

The Germantown Hospital, Philadelphia, $100,000, by the will of Mrs. Sarah B. McLean, Philadelphia.

The Harrisburg Hospital, Harrisburg, Pa., $20,000 from the estate of Robert McCormick, given in the name of his father, who was the first president of the hospital.

St. Luke's Hospital, New York, more than $100,000 from the estate of the late Mrs. Louisa J. Taylor.

Lenox Hill Hospital and Roosevelt Hospital, New York, each, $2,500; Mount Sinai Hospital, $7,500, and St. Luke's, $2,000, by the will of the late Solomon C. Guggenheimer.

The Lutheran Hospital, Brooklyn, $5,000, as the net proceeds of a bazaar recently held in Ridgewood by the Ladies' Auxiliary.

Jacob Elsas, Atlanta, Ga., has donated $100,000 for the construction of a pay ward at Grady Hospital, Atlanta, on condition that the city raise $300,000 for the same purpose within three years.

By the will of Catherine M. Havens, $8,000, to establish a hospital for Plainwell, Mich., and the income from $15,000 for its upkeep.

By the will of Mrs. Kate F. Morton, $50,000, to establish a memorial hospital in Haskell, Texas.

The Riley Memorial Hospital, and the Sunnyside Sanatorium, both at Indianapolis, $1,000 each by the will of George W. Manlove, Atlanta, Ga.

FOREIGN

Memorials to Physicians.—The medical school at Lyons recently unveiled the bust of the former professor of surgery Dr. A. Poncet, known, among other things, for his insistence on the possibility of inflammatory tuberculosis. At the same time a tablet was affixed in honor of Professor Jaboulay, a pioneer in surgery of the sympathetic system. Both died in 1913.——A tablet was also unveiled recently, at the Madrid provincial hospital, in memory of its former surgeon, Dr. Fidel Pagés.

Personal.—Prof. Richard T. Hewlett will retire, August 1, from the chair of bacteriology at King's College University of London, in consequence of the closing of the department of bacteriology and public health at the college. The title of emeritus professor of bacteriology has been conferred on Dr. Hewlett.——Dr. Lawrence J. Henderson, Medical School of Harvard University, Boston, gave three lectures, June 10-12, at the University of London on "Blood Circulation from the Standpoint of Physical Chemistry."

Denmark Reduces Venereal Disease.—The U. S. Public Health Service says that, according to a report of Dr. F. T. H. Wood of the Health Section of the League of Nations Secretariat, syphilis has been reduced in Copenhagen, Denmark, from 8.8 per 10,000 in 1910 to 4.6 in 1922, and the rate of infection with gonorrhea shows a considerable decline. Denmark was the first country to introduce legislation to control venereal disease. In 1788 it adopted a plan of free treatment and compulsory medical care of persons infected with venereal disease. The effectiveness of this measure has since been strengthened by limiting the practice of medicine to qualified persons, by prohibiting "patent medicine" advertisements, providing hospital facilities and establishing the "State Serum Institute," the main function of which is the laboratory diagnosis of syphilis and the maintenance of a card index of persons infected.

New Regulations for Dentists in South Africa.—The Department of the Interior, Washington, D. C., has submitted a summary of the consul's report on new regulations for the registration of dentists by the Medical Council of Natal, South Africa, which have been approved by the governor general in council. They provide that diplomas from institutions in foreign countries do not entitle the holder to registration in Natal unless he is a citizen or a British subject, or unless the foreign country from which the diploma comes grants equal rights to holders of similar credentials granted and registered in Great Britain. The council will consider applications for registrations from only three universities in the United States—Harvard, the University of Michigan, and the University of Pennsylvania—one in Holland, and twenty in the British Empire. If other American universities wish to be recognized, they must apply to the Natal Medical Council, sending full particulars of their curriculums and examinations. No diploma will be considered in any application for registration unless obtained after a minimum curriculum of four years, including (*a*) attendance for two consecutive years at recognized medical and dental hospitals and schools, with (*b*) proof of having been engaged for not less than three years in acquiring a practical familiarity with mechanical dentistry under the instruction of a duly qualified dentist, provided that one year of such instruction may be taken concurrently with the attendance on hospital practice and lectures, and also that in the case of qualified medical practitioners, two instead of three years shall be sufficient. In all cases a satisfactory preliminary examination in general education shall have been acquired. Any dentist entitled to practice in Natal, who shall:

(*a*) Publicly exhibit specimens, appliances or apparatus of a dental or other nature; or

(*b*) Advertise either in the newspapers or magazines, or by handbills or stationery, billheads, telephone or other directories, or by any other similar agency; or

(*c*) Attempt to attract patients by means of advertisements published in newspapers or circulars or by handbills, describing methods of practice, patented or secret processes, or of such a nature as to indicate claims of superiority over other practitioners, or depreciating the value of their work; or

(*d*) Publish or allow to be published, or exhibit or allow to be exhibited in any place whatever, his scale of professional charges, whether fees alone are mentioned, or cheapness or other advantages indicated; or

(*e*) Display, or allow to be displayed, his name or occupation, or both, in any window or signboard or use any advertising sign other than the usual name-plate recognized by the medical profession; or

(*f*) Practice in any other name than his own; or

(*g*) Fail to comply with any notice issued by the council regarding advertising in breach of this regulation

shall render himself liable to be adjudged by the Medical Council to be guilty of disgraceful conduct in a professional respect, and to have his name erased from the register.

Deaths in Other Countries

Dr. **A. Demosthen,** emeritus professor of surgery, Bucharest.——Dr. **E. Schwartz,** professor of surgery, Paris, aged 73.——Dr. **P. V. v. Lechler,** founder of the German Institute for Medical Missions, at Tübingen, aged 75.——Dr. **Haushalter,** professor of pediatrics at Nancy.——Dr. **D. A. de Jong,** professor of pathology at Leyden, aged 60.——Dr. **O. Witzel,** until 1924 professor of surgery at Düsseldorf.——Dr. **A. Bilharz,** director of the Sigmaringen Hospital, aged 89, and brother of the discoverer of *Bilharzia haematobium*.——Dr. **C. Emery,** professor emeritus of zoology at Bologna.——Dr. **C. Rubino,** professor of occupational pathology, Genoa.——Dr. **M. Graefe,** chief of staff of a Halle hospital, aged 70.——Dr. **F. Ranwez,** professor of pharmacology, Louvain, president of the Belgian Académie de médecine, and of the Pharmacopeia commission, aged 59.——Prof. **Josef Breuer,** Vienna, said to be the founder of psychanalysis, June 23, aged 83.

CORRECTION

Grains Instead of Grams.—In the abstract of the paper by K. V. Raju, published in the *Indian Medical Gazette*, May, 1925 (THE JOURNAL, July 4, p. 71), the composition of Sinton's alkaline mixture is given as "grams" for the various ingredients. This should be "grains."

Government Services

U. S. Public Health Service

Consultants William H. Howell of Baltimore, David L. Edsall of Boston, Waller S. Leathers of Nashville, Tenn., Julius Stieglitz of Chicago, Reid Hunt of Boston, Albert J. Chesley of St. Paul and Prof. Charles Edward A. Winslow of New Haven, Conn., were requested to proceed, June 29, to Washington, D. C., for a conference relative to the possible health dangers of tetra-ethyl lead in motor fuel.——Surgeons Charles Armstrong and Carroll Fox were directed, June 17, to proceed from Washington, D. C., and Philadelphia, respectively, to Chester and such other points in Pennsylvania as may be necessary, to investigate alleged cases of dengue fever.——Surgeons Carroll Fox, H. F. White, Carl Michel, Assistant Surgeons E. E. Huber, Adolph S. Rumreich, and Passed Assistant Surgeons John F. Mahoney and Harry E. Trimble have been assigned to duty at Los Angeles in connection with plague suppressive measures.——Surgeon William S. Bean, Jr., has been directed to proceed to Boston and New Haven, Conn., in connection with the investigations of spray paints being conducted by the service.

Foreign Letters

LONDON

(From Our Regular Correspondent)

June 20, 1925.

Conference on Trypanosomiasis

The delegates of Belgium, France, Great Britain, Italy, Portugal and Spain to the International Conference on Sleeping Sickness, which has been meeting in London, have unanimously decided to make to the council of the League of Nations and to their respective governments the following recommendations:

ADMINISTRATIVE MEASURES

1. Facilities should be afforded for periodic official conferences between administrative and medical officers in charge of the campaign against trypanosomiasis on both sides of the boundaries between infected countries. 2. Special agreements should be concluded between local administrations in order to allow of a rapid and regular interchange of epidemiologic intelligence and information regarding the measures taken for the control of trypanosomiasis on both sides of the frontier. 3. The recommendations of the chief of the medical service in trypanosomiasis areas should be binding on the local administrations. The medical officers in these areas should be given magisterial powers regarding the application of all measures in connection with the campaign against trypanosomiasis; the system of sanitary passports for the native population in the affected areas should, where practicable, be adopted for the control of interfrontier traffic, with the view of reducing it to a minimum; and all information available regarding sanitary passports should be collected and the League of Nations experts' committee requested to prepare a draft sanitary passport. 4. Wherever practicable, measures for the establishment of areas freed from populations should be taken on both sides of the frontier in order to facilitate the control of native traffic.

SPECIAL STUDIES AND INVESTIGATIONS

1. An international commission should be entrusted with the duty of investigating the problems of trypanosomiasis in equatorial Africa.

2. Uganda and the regions in the neighborhood of Lake Victoria represent the territory most suited for valuable research work, which has been carried out for several years at the laboratories at Entebbe, under the leadership of Dr. Duke. Extensive field work has been carried out by the medical services of Uganda and by the administration of the adjoining territory of Tanganyika.

3. The commission should be placed under the control of Dr. Duke, and it should consist of a few workers from the institutes of African powers. It is assumed that the services of a biochemist and entomologist with local knowledge would be available.

Osteopaths Demand Recognition

As stated in a previous letter, a determined effort is being made by osteopaths to obtain official recognition. The minister of health (the Right Hon. Neville Chamberlain) received a deputation from the "British Osteopathic Association," which was introduced by Sir Harry Foster, M.P., who referred to an address recently given to members of Parliament by Dr. Kelman Macdonald on osteopathy, in which he mentioned that he had a list of 150 physicians who had benefited from osteopathic treatment, of whom forty had expressed their willingness to give evidence before any tribunal of inquiry that was established; twenty were willing to give some less active assistance, and the remainder were unwilling to help at all through fear of the censure of the General Medical Council. Dr. Littlejohn, president of the British Osteopathic Association, said that the deputation had not come with any antagonistic feelings to the medical profession; they felt that their spheres of activity were quite different. He referred to the history of osteopathy in the United States, where, he said, it was recognized by law in every state, where there were more than 4,000 physicians, and seven colleges recognized as on equality with the medical schools. In all the states of the Union the physicians who had been trained in these recognized schools were registered and licensed to practice, though the particular arrangements in the different states varied. The object of the association was to obtain in this country: (1) the establishment of a register of qualified physicians, which would involve restricting registration to physicians trained in a recognized school; (2) a supervisory board; (3) the limitation of the designation to those who were on the register, and (4) the establishment of schools of osteopathy. They urged that so far as legislation was necessary to attain these objects it should be favorably considered by the minister. The minister said that the point he had to settle was whether the study and practice of osteopathy had advanced far enough to warrant the proposed legislation. There was nothing at the present moment to prevent the establishment of colleges in this country, and legislation was only required to provide for the licensing and registration of practicing osteopaths, putting osteopathy in this respect on the same level as medicine or dentistry. He pointed out that while there was a clear distinction of function between dentists and physicians, there was no such clearly defined distinction between physicians and osteopaths. It would, therefore, be necessary for him to have further information as to the standard that was contemplated. He asked that further details of legislation in the United States and Canada on the subject should be sent to him. He could not go further than to promise that he would give the subject careful consideration.

Memorial to Osler at Oxford

A bronze plaque in memory of Sir William Osler has been unveiled by the vice chancellor of the University of Oxford, in the presence of a distinguished gathering, including Lady Osler; Sir C. S. Sherrington, president of the Royal Society; Sir A. E. Garrod, Osler's successor in the chair of medicine; Dr. J. G. Adami, representing McGill University, and Sir W. B. Leishman, director-general of the army medical service. The plaque has been affixed in the University Museum. It is the work of the French sculptor F. Vernon and is a replica of that made for the University of Maryland. In presenting the plaque on behalf of the subscriber, Sir Herbert Warren, president of Magdalen, praised the services of Osler, his charm and the inspiration of his personality. The vice chancellor said it was a great pleasure to accept the memorial on behalf of the university. Many knew Osler as a name of authority in medicine, but here he was remembered even more by his never failing kindness, his sympathy, his love of children, and his magnetic personality. He was not only a great man, but a most lovable one. A wreath of laurel and white heather was placed at the foot of the memorial by Mr. J. F. Fulton of Harvard, on behalf of the Inter-State Post-Graduate Assembly of American Physicians and Surgeons. Sir Humphry Rolleston, president of the Royal College of Physicians, said that Osler's services to medicine were remarkable for their infinite variety; his activities were not mainly confined, as have been those of some heroes of our profession, to one field, such as laboratory research, clinical observation, teaching or education; he played a prominent part in all these spheres. He first made his mark by investigating the Canadian *Diatomaceae*, then the blood platelets

and the malarial parasite. As a morbid anatomist at McGill he laid the foundation of that sense of proportion so essential for the physician. As a clinician he established new syndromes, such as erythremia, hereditary telangiectases and splenic anemia, and pointed out certain symptoms or signs in recognized diseases, so that "Osler's nodes" in subacute bacterial endocarditis are familiar. The most modern methods of the laboratory were fully utilized to supplement the routine and thorough examination of the patient. Like Trousseau, he ranged over the whole field of medicine; his output amounted to more than 770 books, papers and addresses. Owing to his perpetual youth he had an inspiring influence and wide sympathy and knowledge of young men, teaching them not only medicine but also humanity and the way of life. His great textbook was remarkable alike for its conciseness, completeness and atmosphere of personal experience. His most remarkable success was as an educator of the medical profession, which was largely due to his personality. An Osler memorial fund has also been formed and gratefully accepted by the University of Oxford. From it a bronze medal will be awarded once in five years to the Oxford medical graduate who shall have made the most valuable contribution to the science, art or literature of medicine. The first award of the medal has been made to Sir A. E. Garrod. The residue of the income of the fund may be used in making grants to teachers in the Oxford Medical School to enable them to pursue outside the university some special study connected with medicine.

Beneficial Parasites

In reply to a question in the House of Commons, Mr. Ormsby-Gore, undersecretary for the colonies, said he understood from the director of the imperial bureau of entomology that, during the eighteen months in which the experiment of breeding beneficial parasites with a view to fighting insect plagues in the oversea dominions was being carried out, two successful introductions of beneficial parasites were effected —namely, a parasite of the pear-slug, which was causing serious damage to orchards in New Zealand, and a parasite that was introduced from Nyasaland into Nigeria, with a view to control of *Glossina tachinoides*, a species of tsetse-fly prevalent in Nigeria. Two parasites of the earwig had also been introduced into New Zealand, but, owing to difficulties in rearing them in the laboratory there, the strains had died out. Unfortunately, this work had to be suspended, but it was hoped to resume it shortly.

A Bishop on Birth Control

Preaching at Brighton to a congregation attended by many of the members of the annual congress of the Royal Institute of Public Health, which was being held in that city, the bishop of Birmingham said that our civilization had been transformed in the last hundred years by public hygiene. But this new world had problems as difficult as any which mankind had met. Human welfare was now menaced by human fecundity. The growth of our population had been such that vast masses were deprived of the uncramped existence necessary to health. Was the social conscience now conniving at racial degeneration? The better stocks were increasing slowly, if they increased at all, whereas seventy years ago they were probably increasing almost as rapidly as the general population. The change from large to small families in the middle classes, based on good motives, was not to be condemned. Many thinkers regarded the crowded state of Europe as the main underlying cause of the Great War. They felt that a like catastrophe would recur unless that altruism which limited the increase of population could be made to prevail. By medicine and hygiene, Nature's destructive forces had been conquered, but the victory would be disastrous to human welfare unless a desire for many children which was natural, and until recently laudable, was now held in check. In such constraint there was an element of self-renunciation which was surely Christian. There was a limit to the population which these islands could bear. Through education much more might be done to prevent reckless child bearing and to secure a decrease of reckless fecundity. It was wrong that children should swarm in overcrowded slums. The community had a right to take measures to prevent the increase of tainted stocks. It would be wise to teach its more improvident members that large families were a hindrance to social progress. Only as we created in all ranks of the community a sense of grave responsibility on the part of parents toward their children—only as we pressed that responsibility even to the limit of renunciation of parenthood, could we get a possibility of stable social advance.

Honors for a Blood Donor

Mr. B. W. Tibble, a working printer, has been awarded the O. B. E. (Order of the British Empire) and a life governorship of the London Hospital for helping to save the life of about seventy patients by giving his blood for transfusion.

NETHERLANDS

(From Our Regular Correspondent)

June 18, 1925.

International Collaboration

The Royal Academy of the Netherlands, in concert with the Academy of Sciences of Denmark, has been using every effort to induce the International Council of Research to admit the central powers to membership. In some other fields, similar endeavors have been crowned with success. The last congress of the International Institute of Anthropology, which was held in Prague, passed the following resolution, which was proposed by the delegate from the Netherlands:

The International Institute of Anthropology hereby affirms anew that it is permeated by a spirit of loyal and disinterested cooperation unaffected by any tendencies other than scientific, and authorizes its central bureau to reach some understanding with its various branches so that this cooperation may take on a completely international character, such as befits the spirit of the institute.

Health Certificates as Preliminary to Marriage

A project that was first proposed in 1923 has now been realized through the collaboration of a strong health insurance society. The latter has furnished the organizers with the needed quarters for the establishment of a special consultation service for the examination and counseling of persons contemplating marriage. At the opening of the service, Professor Van Emden recalled the various stages through which the marriage consultation bureau idea had passed. Professor Van Rooy emphasized that the sole purpose of the bureau was not to examine matrimonial candidates as to the presence of venereal disease, but to give them a thorough health examination. No treatment will be given by the bureau, but applicants who prove to be in need of treatment will be referred to their regular physician or to a specialist.

Pneumonoconiosis

The report of the bureau of labor inspection contains a detailed study on the trade of quarriers and stone cutters, and gives some interesting details of the operation of a law that has been in force since 1921. Up to 1921, the trade had been regulated by a law that did not require the regular examination of adult workmen. The new law, however, provides for the examination of workmen every three years at the longest, in order that the dangerous processes resulting from the continued inspiration of dust, leading to pneumonoconiosis, may be supervised and controlled. The latest researches, covering 963 individuals, showed 498 persons with-

out physical defects and 465 with clinical signs of pulmonary lesions, the presence of which was confirmed in more than 100 instances by a roentgenographic examination. These results furnish sufficient evidence for the need of medical supervision of this industry.

The Basis of the Test for the Securing of an Automobile Driver's License

A new tendency is manifesting itself in the medical world in connection with the determination of the minimal physical and mental requirements that should be made the basis of automobile drivers' licenses. It is being emphasized that a distinction should be made between a license for (1) drivers of private automobiles, for which an examination by any practicing physician would suffice, and a license for (2) professional drivers, for which a more detailed examination requiring the assistance of specialists would be needed.

Medical Education

The medical section of the Vryzinnig Christlyken Studentenbond will soon discuss the question of medical education. The Studentenbond alleges that in the present form of instruction the education of the future physician is limited to technical training and that the physician's moral conception of his profession is completely ignored. It holds that, along with his professional training, the young physician should receive such a general education as would cause him to appreciate better the responsibilities of the position he is to occupy.

The Psychotechnical Laboratory in the Army

The *Nieuwe Rotterdamsche Courant* recalls the difficult experiences that the two officers Rouffaer and Alting had in 1919 and 1920 in endeavoring, at the time of recruiting, to reach any definite conclusions in regard to the aptitudes of recruits, so as to assign them to the branches of the service for which they were best fitted. In 1922, the minister of war appointed a commission to study into the problem and report the results of their researches. The report of this commission resulted in the creation in the army of the bureau of psychotechnical examinations, installed at Utrecht at the military school for gymnastics and sport. For the present the bureau will confine itself to making selections on the basis of the general intelligence of the subject. The intelligence test will be given at twenty different recruiting stations. The final selections will not be made until after the recruits have been mustered in, but then an endeavor will be made to select through the indications of intelligence tests the men who are peculiarly fitted for the signal service, the telephone service, the artillery service, and so forth.

Coloration of Foodstuffs

The review *Volksvoeding* protests against the inordinate use of coloring matter in various foodstuffs, notably in the manufacture of butter and pastries. The law does not permit the use of other than absolutely harmless coloring substances; but that is not all. The coloring introduced into a substance must not deceive the buyer with regard to the quality of the article offered for sale. But very often—especially in the case of pastry—the use of a yellow coloring matter is solely for the purpose of indicating the presence of eggs. This is a form of trickery and should be protested against, not only from a hygienic but equally from an economic point of view.

The New Red Cross Hospital

The Red Cross Society of the Netherlands is erecting a new hospital at The Hague. This hospital, of which E. Cuypers is the architect, will occupy an area of 110 by 210 meters and will be surrounded by a city park. The hospital will accommodate 145 patients. The quarters reserved for the medical and the surgical services, the policlinic, the nurses' apartments and for purposes of instruction are separate from the rooms and wards of the patients. All the rooms of patients have a southern exposure and an outlook into the park. Just under the roof are open porches, or *loggias*, for sun treatment. Two operating rooms with thoroughly modern equipment adjoin the hospital. Prof. W. Nolen will be director of the hospital. The total cost of the hospital will amount to 1,925,000 florins, or approximately $770,000.

BUCHAREST

(From Our Regular Correspondent)

June 20, 1925.

Tuberculosis and Travel

With the beginning of the vacation season, the supreme sanitary board has inspected all bath resorts and has ordered the correction of any defects. The attention of the board has been called also to the use of conveyances for travel by sick persons. Dr. Panaitescu, teacher of hygiene, has particularly emphasized the risk of the spread of typhoid infection by the present haphazard method of disposing of excrement on railway journeys. A more obvious, as well as a more widespread, danger, is the diffusion of tuberculous disease by expectoration in railway carriages. In the third class carriages, passengers are scarcely able to protect themselves from filth. It would be well if the use of leather or some other smooth upholstering stuff were substituted for the materials used since the termination of the war, though, of course, such a change would be useless unless proper cleansing methods were employed. It is the duty of the medical profession, said Dr. Panaitescu, to impress on the public the necessity of adopting simple safeguards.

Differential Diagnosis of Chancre of the Tonsil

Dr. Popovici, director of a large venereal hospital in Jassy, recently reported a peculiar case in the Cluj Medical Society in which a crypt of the tonsil infected with staphylococcus was regarded by many experienced observers as a hard chancre. The crypt was of a peculiar form, deep and funnel shaped, with an overhanging rim, and being half filled with a dirty grayish mass it presented all the appearances of a primary lesion. It disappeared, however, without antisyphilitic treatment, on the application of 5 per cent. boric acid ointment, and it was only on the appearance of syphilitic manifestations two years later that its true nature was realized. Dr. Popovici remarks that though a hard chancre in one of the usual situations does not as a rule present much difficulty in diagnosis, yet when it occurs in so rare a site as the tonsil it is natural that some confusion may arise. It has been mistaken for such varying conditions as simple tonsillitis, diphtheria, epithelioma and a tertiary lesion. The confusion with diphtheria and other ulcerating infections is most common, and Krefting of Christiania, who has reported thirty-six cases of chancre of the tonsil, mentions that many of the patients had been sent to the diphtheria ward. In some cases the lesion has been excised as an epithelioma, the mistake being discovered only when the specimen was subjected to microscopic examination.

Callus Formation in the Fractures of Osteomalacia

Dr. Aruncovici reports two cases in which the roentgenograms, taken several months after the injury, show no signs of callus formation. In one case there was a very faint shadow around the fracture of the bones of the forearm. Some degree of union seemed to have taken place, but the very slight deposit of lime salts permitted the rays to pass through without interference. In the other case the fragments were not in apposition, and the picture taken six

months after the injury showed absolutely no evidence of repair. Dr. Aruncovici thinks that the reason that in one case there seemed to be formation of a functional callus, but without the presence of lime salts, while in the other there were absolutely no traces of a callus, is that osteomalacia in the former case had not advanced as far as in the latter; for it is well known that the more the disease has advanced, the less likely is repair to take place. These observations also show that the roentgen rays afford a very effective means of gaging the stage to which the process has advanced, for, in the first case, the bone presented a spotted or marbled appearance, while in the other the bone structure could not be detected.

Transmission of Tuberculosis in Married Couples

Dr. Georg Vali has investigated the life history of a number of widows and widowers whose partners have died of tuberculosis. Having ascertained from the registers of deaths the names of married persons who had died of pulmonary tuberculosis, he noted the causes of death of the consorts. Control statistics were provided by making similar researches in regard to the deaths of married persons who died from other causes. The first group comprised 280 persons with forty-seven deaths, all of them being due to tuberculosis; in the second group, 298 persons with fifty-two deaths, only eight were from tuberculosis. The survivors in both categories were followed up for periods varying from five to fifteen years and the results were tabulated according to age in order to admit of fair comparison. He found that between the ages of 30 and 40 the proportion of deaths from tuberculosis was nine times greater on the part of the husbands and wives of tuberculous persons than among the general married population. The fact that this excessive tuberculosis mortality is not due to feebleness of constitution is shown by the fact that their mortality from other causes was not above the normal. The point is also illustrated in another way; for while the mortality from tuberculosis was only 1.2 in fifty-two for all widows and widowers indiscriminately, it was 7 in fifty-two for those whose partners had died of tuberculosis. It is certainly a significant fact, says Dr. Vali, that at a period of life which may be taken to correspond to recent widowhood the tuberculosis mortality is eight or nine times above the normal. This is only what one would have anticipated, but these statistical results establish the reality of the risk incurred by married persons afflicted with a tuberculous partner, and the knowledge may perhaps induce more prudence on the part of young persons in concluding marriage.

Malarial Problems in Albania

The government of Albania has taken in hand its greatest problem, malaria. More than 60 per cent. of the inhabitants of malarial districts actually harbor the plasmodium of malaria in their blood, and it is probable that practically all of them have suffered from the disease at some time or another. It has been shown that dwellers in malarial districts gain, as the result of previous attacks and the long continued presence of the plasmodium in their blood, a kind of immunity which protects them as a rule from further attacks. But with strangers coming to this district it is different, and the natives, though immune themselves, are a potent source of infection to newcomers. The task before the sanitary officials, then, is no light one. The government intends to import and keep many hundreds of foreign laborers to teach the inland populations new industries. It will be necessary either to destroy the parasites in the natives or to keep the laborers immune by means of quinin or to destroy all the mosquitoes that could act as carriers of infection.

BERLIN

(From Our Regular Correspondent)

June 20, 1925.

Regulations to Control the Use of Narcotics

The federal ministry of the interior, after considering charges (apparently well founded) that narcotic drugs are being secured for improper uses on the basis of physicians' prescriptions, has drawn up the following regulations for the observance of physicians:

1. In prescribing opium, morphin, cocain and diacetylmorphin (heroin) or preparations containing one or more of these drugs, physicians must in every instance inquire most carefully into the necessity of such narcotics being employed and must exercise the greatest caution in determining under what form and in what quantities they are to be used. They must constantly bear in mind that many persons will try to deceive them in order to secure narcotics for improper uses. Physicians should not issue a written prescription for narcotic drugs unless they are assured in their conscience and are willing to hold themselves responsible before the medical profession for the kind and quantity of drugs prescribed.

2. Physicians must be exceedingly careful to prevent any of their prescription blanks falling into unauthorized hands. In case the pharmacist telephones or seeks information in any other manner in regard to a prescription that has been presented to him, a physician must graciously furnish him the information needed, bearing in mind that the pharmacist is only acting in accordance with his duty.

3. Prescriptions covering narcotic drugs must be made out with great care, so that the pharmacist will have no doubt as to their authenticity. If a physician should have no printed blanks at hand, he must take special pains that the whole appearance of the prescription shall be such as to awaken no suspicion as to its genuineness.

4. Written requests to a pharmacist to furnish narcotic drugs in larger quantities for a dispensary or for hospital use must always take the prescribed form of prescriptions. Such requests must be signed by the physician, and not by the nurse or other medical attendants.

5. Narcotic drugs for the use of patients should be prescribed only in a form ready for use (solution, tablets, ointments, etc.). The quantity should be limited strictly to the needs in the given case. References to refilling prescriptions for narcotic drugs are out of place, since the dispensing of narcotics (also in solutions, etc.) requires a new prescription each time. Also for his personal use and for the use of patients in his office practice, a physician should procure narcotic drugs only in a form ready for use and only in such quantities as are habitually employed in medical practice.

The Haff Disease

Fourteen new cases of the peculiar Haff disease have been reported. For the further investigation of the causes of the disease, a special laboratory of chemical research has been established in Pillau, near Königsberg, of which Prof. Dr. Lockemann of the Robert Koch Institute for Infectious Diseases in Berlin has been appointed director. The chemical and experimental researches, which, up to now, have been carried out in the laboratory at a distance, will be continued at the actual site of the occurrences. The scientific institutes of Königsberg are working in common with the experts from outside and the health officers of the government board to clear up the situation with regard to the Haff disease. Extensive operations have either already been undertaken or are being planned for the improvement of conditions affecting the waste waters discharged by the Königsberg canalization system.

The New Census

The general census to be taken, June 16, 1925, will include an enumeration of the population and a statistical survey of the trades, professions and industries. The last enumeration of the population was made, Dec. 1, 1910, and the last general census of the trades, professions and industries was taken, June 12, 1907. The enumerations made in 1916, 1917 and 1919 were undertaken either for war purposes or to establish an economic basis for food distribution. They did not include the whole population of the country, nor did they give a complete survey of the industries. The need of new statistical information concerning the population of the whole country, its political subdivisions and its cities, towns and communes, and, above all, the lack of definite bases for judging the industrial and social organization of Germany and the structure of our economic life, are becoming more and more keenly felt. For technical and financial reasons, the statistical survey of the trades, professions and industries is to be made along with the enumeration of the population. The plans for the taking of the census were worked out by the federal bureau of statistics, with the cooperation of the provincial statistical bureaus, experts in the fields of agriculture, industry and commerce; representatives of organizations of employers and employed; also other professional organizations. The primary statistical material will be collected by the provincial governments, and the vast work of collating the statistical material will be performed by the provincial statistical bureaus. The final systematic arrangement of the material and the tabulation of results will be carried out by the federal bureau of statistics.

The Badische Gesellschaft für soziale Hygiene has petitioned the Reichstag to have information collected as to the number of persons with invalidity insurance (*Invalidenversicherung*). The collection of health statistics in Germany is carried out imperfectly as compared with foreign countries—England, for example. In connection with the industrial census of 1907, information was collected as to invalidity insurance, but like information was not secured at the industrial census of 1895. Statistics on the number of persons insured against invalidity would be of great value in the collection of health statistics. Not only could the age distribution of the insured be compared with the age distribution of the noninsured, which would furnish an important insight into health conditions among the insured, but it would become possible to use the hitherto totally unused mass of statistical material collected by the provincial insurance bureaus on the causes of invalidity. This statistical material is particularly reliable, since the reported causes of invalidity are based on precise medical examinations by experts. Statistics on the causes of invalidity would be much more trustworthy than the statistics on the causes of death or of illness, as collected by the health insurance societies. But, in order to make full use of the statistics on the causes of invalidity, the number of the insured, from whose ranks those drawing pensions on the basis of invalidity have sprung, must first be ascertained.

The Influence of Vitamins on Nutrition and Nutritional Disturbances

In the pediatric section of the Berlin society of internal medicine and pediatrics, Professor Reyher recently discussed the part that vitamins play in the nutrition of infants. Our lack of knowledge of the chemical structure of vitamins, together with their lability, renders research work on these accessory food factors difficult. A deficiency of vitamin C leads to scurvy in infants. The four stages in the evolution of scurvy are marked by changes in the weight curve: (1) period of slow increase; (2) standstill; (3) slow decrease, and (4) sudden loss of weight. Loss of appetite, peevishness, and loss of turgor are early signs of the disease. An incipient polyglobulism is followed later by anemia; on recovery, the erythrocytes are again increased. Resistance to infections is lowered. During convalescence, the symptoms disappear in the same order in which they first appeared—the more severe the disturbance, the more slowly the symptoms recede. The duration of the fever in the scorbutic child is longer, the more advanced the scorbutic injury was. In "scorbutic atrophy" it may require months to bring about defervescence, in spite of the ingestion of food rich in vitamins. Monothermia in an infant is, therefore, a sign of health and normal nutrition. The numerous infections as a result of lowered resistance arising out of defective nutrition due to scorbutic effects, together with hemorrhages, are coordinate phenomena in scurvy. Hemorrhage occurs only as the result of trauma. The scorbutic depletion of nutrition and not the more manifest Barlow's disease is the most frequent expression of lack of vitamin C. We may have bronchitis, pyuria and toxicosis associated with deficiency of this vitamin. A deficiency of vitamin B in the food causes similar havoc. The following disease conditions are traceable, on the basis of therapeutic results, to a deficiency of antineuritic vitamin: (1) avitaminotic premature birth—that is, premature birth in mothers in whose food vitamin B was lacking; (2) alimentary edema in young infants born of mothers who suffered from eclampsia or hyperemesis gravidarum; (3) pylorospasm in infants; (4) disturbed nutrition of spasmogenic origin, which, in its widest application, includes tetany, and among the manifestations of which vegetative symptoms and cardiac enlargement are always present, whereas tests with the electric current may not show hyperexcitability, and (5) intestinal infantilism, which is cured in a few months by the ingestion of food rich in vitamin B. A deficiency of both vitamins B and C leads to exudative diathesis and rickets. Rickets is not due to a lack of fat-soluble vitamin A. Rickets yields, however, to a diet rich in vitamins B and C. All other antirachitic therapeutics (even the quartz mercury vapor lamp) prove inefficacious, except at such seasons when the food is rich in vitamins B and C—namely, in May and June. The existence of vitamin A does not seem to be absolutely established. Large quantities of food containing vitamin C have to be ingested before beneficial results are secured. Vitamin C is impaired only by heat, desiccation and preservatives. The content of vitamin C in foodstuffs depends also on the fertilization of the soil and on climatic factors. If the soil lacks fertilizers or there is insufficient rainfall, vegetables and fruits contain scarcely any vitamins. In order to obtain milk rich in vitamins, cow feed raised on adequately fertilized soil should be used.

Reyher's address was followed by a spirited discussion. According to Hamburger, the supposed effect of vitamin B on the gain in weight may not be due to the action of vitamins, but may possibly be explained as the effect of the protein contained in the yeast. In opposition to the view that pyloric spasm is due to a lack of vitamin B may be adduced the fact that operative intervention cures the condition without change of diet. Götzky observed a decline of morbidity and mortality in a home for infants following prompt and regular ingestion of vitamins, and good effects of vitamin B in pyloric spasm and infantilism. Finkelstein warned against taking exaggerated views in regard to avitaminoses and assumed a somewhat skeptical attitude toward the supposed disease conditions pictured by Reyher. E. Müller stated that some of the effects ascribed to vitamins may be due to mineral substances. Procedures that injure vitamins destroy, or modify the effects of, organic salt compounds. H. Davidsohn expressed some doubt as to whether an infant's food was ever so poor in vitamin B as to cause disturbances, especially since vitamin B is much more resistant to all interventions than vitamin C. L. F. Meyer doubted the existence of

avitaminoses due to a deficiency of vitamin B but felt that the many effects arising out of a lack of vitamin C in infants' food could not be sufficiently emphasized. In a hospital for infants it had been found that therapeutic effects could be brought about only by the ingestion of large quantities of vitamins (from 50 to 100 gm. of fruit juice daily). All infections, tuberculosis included, increase the need of vitamins, and a rapid succession of infections in winter can be prevented only by large quantities of vitamin C. Scorbutic hemorrhages usually appear in connection with infections due to a deficiency of vitamins, although the ultimate cause may be a trauma. Langstein was agreed that the question of milk supply should be investigated anew in the light of our knowledge of vitamins. Orgler emphasized that, since an infant's food is never entirely lacking in vitamins, facts observed in animal experiments cannot be assumed, without further investigation, to hold good in human pathology. Nassau observed, following ingestion of vitamin B, an improvement in appetite but only a temporary beneficial effect on the gain in weight, and no effect in the prophylaxis and cure of tetany. Reyher stated, in closing the discussion, that, as the result of an increased ingestion of vitamins, the mortality in his institution had been reduced two thirds.

Criteria for the Determination of Blindness

At the request of a committee of the federation of Saxon societies for the blind (*Blindenvereine*), the Saxon bureau of public health has published the following criteria to determine whether a subject is, for all practical purposes, "blind": 1. The question should be established, in case of doubt, by a certificate of an ophthalmologist. 2. According to official regulations, the category of "blind" persons includes not only those who are totally blind but also those whose acuity of vision is less than 1/25 of normal, although many such persons may be able to find their way about the streets without a guide. 3. This limit for central vision may be exceeded if, in addition to the weakness of vision, there is also a considerable reduction of the field of vision, which may be caused chiefly by atrophy of the optic nerve, glaucoma, pigment degeneration, detachment of the retina or hemianopia. In such cases, the ophthalmologist must state the special reasons why an applicant should be admitted to a *Blindenverein*. Also advanced age, or the fact that the applicant has no near relatives to take care of him, may be taken into account.

Marriages

RICHARD POOLLARD PULLEN, New Britain, Conn., to Miss Ruth Agnes Lindstrom of East Greenwich, June 10.

KENNETH ALEXANDER MORRIS, Jacksonville, Fla., to Miss Mildred Lockwood Pool of New Orleans, June 16.

GEORGE LANE TANEYHILL, JR., Baltimore, to Miss Marguerite Guard McAllister of New York, June 25.

KAMIL SCHULHOF, Chicago, to Miss J. Serrita Jane of Chicago, formerly of San Francisco, July 3.

JOSEPH PAUL GRAVES, Kenosha, Wis., to Miss Jeanette Valeria Schreiner of New Holstein, June 22.

HAROLD J. NORTON, Columbus, Ind., to Miss Helen Green Patten of Springfield, Ohio, April 28.

RALPH C. MELOY to Mrs. Nell Brainard, both of Claremore, Okla., at Tulsa, in April.

DAVID MAJOR BELL, Canonsburg, Pa., to Mrs. Jeanne Russell Bell of Dormont, June 25.

ROBERT LOVELL SAMUEL to Miss Ada Rubenacker, both of Maysville, Ky., in June.

EDWARD MICHAEL TAPPER to Dr. Deborah H. Cohen, both of Brooklyn, June 21.

GEORGE DAVID HAUBERG, Moline, Ill., to Miss Emma Rydell of DeKalb, June 24.

Deaths

Henry M. Thomas ⊕ Baltimore; University of Maryland School of Medicine, Baltimore, 1885; clinical professor of neurology, Johns Hopkins University Medical Department; member of the American Neurological Society (pres. 1910-1911), the Maryland Psychiatric Society, the Philadelphia Neurological Society and the Association for Research in Nervous and Mental Diseases; neurologist to the Johns Hopkins Hospital, 1894-1925, and the Presbyterian Eye, Ear and Throat Hospital; aged 64; died, June 21, at his country home at Blue Ridge Summit, Pa., of heart disease.

William A. Peterson ⊕ Chicago; College of Physicians and Surgeons, Chicago, 1897; member of the Chicago Ophthalmological Society; for twenty years medical director of the Mutual Trust Life Insurance Company; aged 58; died, June 28, at the Presbyterian Hospital, of pyelonephritis, following an operation.

George Fillmore Severs, Centerville, Iowa; Drake University College of Medicine, Des Moines, 1887; Eclectic Medical Institute, Cincinnati, 1889; member of the Iowa State Medical Society; for thirteen years a member and at one time president of the state board of health; aged 67; died, June 22.

George Fraser Wilson, Miami, Fla.; Medical College of the State of South Carolina, Charleston, 1901; member of the South Carolina Medical Association; professor of obstetrics, Medical College of the State of South Carolina, Charleston; aged 46; died, June 12, at the Johns Hopkins Hospital, Baltimore.

Reginald Harry Brett, Banff, Alta., Canada; University of Manitoba Faculty of Medicine, Winnipeg, 1902; coroner of the district of Banff and medical officer for the Rocky Mountain Park; superintendent of a hospital bearing his name; aged 46; died, May 8, at Edmonton.

Henry Joseph Dilberger, Brooklyn; Long Island College Hospital, Brooklyn, 1911; member of the Medical Society of the State of New York; attending physician to St. Anthony's Hospital and St. Peter's Hospital, where he died, June 23, following an operation, aged 53.

Charles W. West ⊕ Philadelphia; University of Pennsylvania School of Medicine, Philadelphia, 1905; member of the Philadelphia Pediatric Society; formerly pediatrician to the Medico-Chirurgical, Polyclinic and National Stomach hospitals; aged 48; died, June 23.

Thomas Jefferson Shinn, Wagoner, Okla.; University of Arkansas Medical Department, Little Rock, 1905; member of the Oklahoma State Medical Association; president of the Wagoner County Medical Society; aged 48; died, May 9, of miliary tuberculosis.

Uriel H. Squires, Hebron, Neb.; Cleveland University of Medicine and Surgery, 1882; member of the Nebraska State Medical Association; president of the Thayer County Medical Society; aged 71; died, June 20, of carcinoma of the intestine.

Harry F. Blailock, Waco, Texas; University of Texas Department of Medicine, Galveston, 1900; member of the State Medical Association of Texas; served in the M. C., U. S. Army, during the World War; aged 50; died, June 12.

James McCall, Jr., Terre Haute, Ind.; Medical College of Indiana, Indianapolis, 1897; member of the Indiana State Medical Association; formerly on the staff of St. Anthony's Hospital; aged 54; died, June 22, of heart disease.

George E. Letourneau, Rouses Point, N. Y.; Victoria University Medical Department, Toronto, Ont., Canada, 1879; member of the Medical Society of the State of New York; health officer of Rouses Point; died, May 24.

James Buchanan Neale, Reynoldsville, Pa.; Cincinnati College of Medicine and Surgery, 1885; member of the Medical Society of the State of Pennsylvania; aged 66; died, May 13, of chronic nephritis and bronchopneumonia.

William T. Gautier, Los Angeles; University of Louisville School of Medicine, 1876; member of the Medical Association of Georgia; aged 70; died, June 18, of injuries received when struck by an automobile.

Donis E. Wilhelm, Kansas City, Mo.; University Medical College of Kansas City, 1907; served in the M. C., U. S.

Army, during the World War; aged 41; died, June 15, at the U. S. Veterans' Hospital.

Cecil Champenois, Meridian, Miss.; Medical Department of the Tulane University of Louisiana, New Orleans, 1899; member of the Mississippi State Medical Association; aged 51; died suddenly, June 16.

Norman Bruce Edgerton ✽ Columbia, S. C.; Medical College of the State of South Carolina, Charleston, 1912; member of the American Urological Association; aged 38; died, June 16, of pneumonia.

Leslie Clyde Burton, Clayville, Va.; Maryland Medical College, Baltimore, 1910; served in the M. C., U. S. Army, during the World War; aged 41; died, May 20, at a hospital in Richmond.

Karsten A. L. Zetlitz ✽ Los Angeles; University of Christiania, Norway, 1888; member of the South Dakota State Medical Association; aged 63; died, June 17, of carcinoma of the lungs.

Edgar O. McCall, Portsmouth, Ohio; Cleveland College of Physicians and Surgeons, 1890; member of the Ohio State Medical Association; aged 66; died, June 18, at the Mercy Hospital.

Alfred C. Palmer, Urbanna, Va.; University of Maryland School of Medicine, Baltimore, 1881; at one time a member of the state board of medical examiners; aged 68; died, May 29.

Rolf Frederick Nannestad, Lanesboro, Minn.; University of Minnesota Medical School, Minneapolis, 1921; member of the Minnesota State Medical Association; aged 29; died in May.

John H. Miller, Delaware, Ohio; University of Pittsburgh School of Medicine, 1887; member of the Ohio State Medical Association; aged 66; died, June 15, of pernicious anemia.

Lucy Morton Robinson, Brockton, Mass.; Woman's Medical College of Pennsylvania, Philadelphia, 1888; member of the Massachusetts Medical Society; aged 85; died, June 12.

George Irving Bluhm ✽ San Francisco; College of Physicians and Surgeons, Chicago, 1894; aged 57; died, June 20, at the Lane Hospital, of shock following an operation.

William Lewis Chapman, Jr., Brooklyn; Long Island College Hospital, Brooklyn, 1923; intern, Kings County Hospital; aged 26; died, June 14, of chronic nephritis.

William L. Parchman, Van Buren, Ark.; Memphis (Tenn.) Hospital Medical College, 1901; member of the Arkansas Medical Society; aged 71; died, June 4.

O. W. Turner, Helena, Ga.; Atlanta Medical College, 1886; member of the Medical Association of Georgia; aged 81; died, June 16, following a long illness.

John W. Williams, Irwin, Va.; Medical College of Virginia, Richmond, 1864; member of the Medical Society of Virginia; aged 86; died, May 11.

David Reiter, Philadelphia; University of Pittsburgh School of Medicine, Pittsburgh, 1909; aged 52; died, June 26, at the Lankenau Hospital.

Franklin Crawford Newton, San Francisco; Cooper Medical College, San Francisco, 1894; aged 54; died, June 14, of tuberculous meningitis.

Hugh Wilson Sweeney, Monroe, La.; College of Physicians and Surgeons, Baltimore, 1908; aged 42; died, May 10, of heart disease.

Henry B. Pettingill, New York; Detroit College of Medicine and Surgery, 1887; aged 74; died suddenly, June 16, of heart disease.

John S. Parson, Ashland, Ore.; Jefferson Medical College of Philadelphia, 1873; aged 74; died, May 11, of cerebral hemorrhage.

John Sterling Carriger ✽ Chelsea, Okla.; Bellevue Hospital Medical College, New York, 1886; aged 62; died, May 19.

Peter Aylen, Fort Saskatchewan, Alta., Canada; McGill University Faculty of Medicine, Montreal, Que., 1886; died in April.

Harold Grant Marvesyn Nyblett, Calgary, Alta., Canada; Trinity Medical College, Toronto, 1896; aged 54; died, April 28.

Augustine Ben Childs ✽ Keithsburg, Ill.; Rush Medical College, Chicago, 1908; aged 44; died recently.

Putnam Francis Peet, Franklinville, N. Y.; Kansas City Homeopathic Medical College, 1892; aged 78; died, March 28.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE JOURNAL'S BUREAU OF INVESTIGATION, OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER GENERAL MATERIAL OF AN INFORMATIVE NATURE

RHEUMEEZ NOT ACCEPTED FOR N. N. R.

Report of the Council on Pharmacy and Chemistry

The Council has authorized publication of the following report.

W. A. PUCKNER, Secretary.

Rheumeez (Casco Laboratories, Elizabeth, N. J.) is claimed to be magnesium cinchophen, the magnesium salt of 2-phenylquinolin-4-carboxylic acid.

From the advertising one gains the impression that the production of a magnesium salt of cinchophen is a noteworthy achievement on the part of the Casco Laboratories and that the product is therapeutically superior to cinchophen. The compound appears, however, to be the analogue of the well known sodium cinchophen which is formed when cinchophen is dissolved in water with the aid of sodium bicarbonate. Further, when a solution of Rheumeez is treated with hydrochloric acid, 0.2 per cent., cinchophen is precipitated out. Evidently, then, the compound will be decomposed in the gastric fluid of the stomach and its administration will be equivalent to the administration of cinchophen accompanied by an insignificant amount of magnesium (a tablet which is claimed to contain 2½ grains would yield less than ½ grain of magnesium chlorid ($MgCl_2$).

Rheumeez is advertised to the public both directly and indirectly. The therapeutically suggestive name, the fact that this name is blown in the glass of the container in which the liquid form is sold and the therapeutic recommendations that appear on the label of the bottle all tend to bring the product to the attention of the public if it is prescribed by a physician. The following from the Rheumeez circular shows that the product is exploited direct to the public:

"How to take Rheumeez. Rheumeez comes in a small box, 20 tablets to the box, which can be easily carried in the vest pocket, or purse. Always have your Rheumeez with you so that you can consistently follow its directions. Take one tablet three times daily, after meals, and follow with a glassful of water. When the first box is finished, if you are still suffering in the slightest way, write us at once for another box."

The Council refused recognition to Rheumeez because (1) it is an unessential modification of the established drug cinchophen; (2) it is marketed under a nondescriptive, therapeutically suggestive name, and (3) it is advertised with unwarranted and misleading claims which will lead the public to attempt self-medication in conditions which require the diagnosis and supervision of physicians.

Correspondence

ELECTROTHERAPEUTIC APPARATUS

To the Editor:—In THE JOURNAL, June 20, is a question asked by Dr. S. B. Koory of Schuyler, Neb., relative to the value of the various electrotherapeutic apparatus. In reading this over, one gains the impression that the high frequency apparatus is fitted or used mainly for fulguration, desiccation or electrocoagulation, the answer merely mentioning diathermy and autocondensation. It is difficult to give a detailed answer to such a question, but it might be well to stress the value in other directions, as, for instance, diathermy and autocondensation in the many metabolic conditions which are peculiarly amenable to electrotherapy properly applied, and for which drugs do so little. Other modalities as well are valuable, such as the static and constant currents, actinic and radiant energy.

Naturally, the salesman is commercial, and too many physicians permit him to give all the education they ever receive before taking up the work. I feel that we cannot too well equip ourselves with the proper knowledge of the physics and therapeutic applications of the currents before starting out to cope with the ills of mankind. Our incompetence in the past has had largely to do with the ban on electrotherapeutics under which it labored for many years.

WILLIAM MARTIN, M.D., Atlantic City, N. J.

WAR VETERANS EDUCATED FOR MEDICINE

To the Editor:—The national government has educated for the medical profession hundreds of men, and still has in training many hundreds more.

These men are in the leading colleges and universities of the country and are scattered from coast to coast. The chief cities in which this training is given, and the number of men being trained for medicine in these cities, are: Boston, 20; New York, 21; Philadelphia, 32; Washington, D. C., 16; Atlanta, Ga., 10; Cincinnati, 13; Chicago, 47; St. Louis, 19; Minneapolis, 17; San Francisco, 16; Los Angeles, 9, and Denver, 14.

This educating of men for the medical profession on the part of the national government is a part of the work of training and educating the soldiers who served in the American Forces during the World War and who received wounds and disabilities that prevented them from working at the same occupations that they worked at before the war. This work is now entering on its last phase, and will terminate, June 30, 1926.

The scope of the work of our government in endeavoring to rehabilitate the disabled soldiers of the World War is realized by few. It has been going on since 1918. A total of 177,823 disabled soldiers have entered on this training and education under the jurisdiction of the national government. These men are from every section of the country and have been trained for almost every conceivable occupation. Some have been enrolled in practically every university, college and school in the country, while thousands of others have been trained "on the job" in the factories and workshops of the country. More than 92,000 have finished their training, have been declared rehabilitated, and practically all of these have been placed in the kind of employment for which trained. Some 25,000 men still remain in training, and, as stated above, several hundred of these are studying medicine. A large number of these will be declared rehabilitated and ready for employment on their graduation from schools and colleges.

The national government's work in connection with the rehabilitating of the disabled soldiers is carried on under the auspices of the United States Veterans' Bureau, a separate department of the government directly under the control of the President. Under the acts of Congress governing this rehabilitation work, it is expected that the bureau will train these men for the vocations which they will be able to perform successfully. When the bureau completes the training of these so-called "disabled veterans" they are in no sense disabled so far as their ability and usefulness is concerned in carrying on in the specific line of work which they have been trained. The government aims to make them able men in their new vocations.

The men that are being trained for the medical profession are students in the best schools of the country. Much thought was given by the bureau to the previous preparation, ability and suitability of these men for the medical profession before they were permitted to begin their course of study. The bureau is proud to report that many of its students of medicine have carried off honor grades in various schools.

It is the duty of the Veterans' Bureau, as provided for under the acts of Congress affecting this work, to secure employment for the men whom it has trained. This duty can be performed only through the cooperation of the general public. One of the brightest spots in the work of the United States Veterans' Bureau is the marked degree of cooperation that has been shown by the employing public in taking into employment the thousands of men whom the government has trained and rehabilitated.

It is especially difficult to find employment for persons that are being trained for the various professions. The bureau feels certain that it is appealing to a most receptive portion of the general public when it asks the members of the American Medical Association to render cooperation and assistance to the government in the employment of men whom it has trained for the medical profession.

As the bureau has branch offices in practically all the large cities of the United States, effective contact can be made by those interested with any one of these offices. The United States Veterans' Bureau, Central Office, Washington, D. C., solicits inquiries and correspondence from members of the medical profession who might consider favorably taking into their offices one or more of these deserving men who are ambitious for success in medicine.

FRANK T. HINES, Washington, D. C.
Director, U. S. Veterans' Bureau.

HOSPITAL COMMITTEE OF NEW JERSEY STATE MEDICAL BOARD REPLIES TO PENNSYLVANIA

To the Editor:—At a meeting of our Hospital Committee, May 30, the secretary presented a copy of a letter written by Dr. William Pepper, dean of the University of Pennsylvania School of Medicine, to THE JOURNAL (published May 30).

The committee feels that he is not in possession of the full facts. He states that the New Jersey board blacklisted every hospital in the state of Pennsylvania because it became annoyed at the fact that recognition had been refused "a certain" New Jersey hospital by the Pennsylvania board. This statement, of course, does not cover the situation. He fails to state that the New Jersey board and Pennsylvania board had had a great deal of correspondence lasting over a year, concerning the hospital situation, and that one conference had been held between committees from both boards, the New Jersey representatives traveling to Philadelphia for the purpose. The Pennsylvania board has taken an arbitrary attitude which it refuses to compromise in any way.

The Jersey City Hospital is an excellent institution, is approved both by the New Jersey Board of Medical Examiners and by the American Medical Association. A young man finished a fifteen months' internship at the Jersey City Hospital in October, 1923, and was refused permission to take the Pennsylvania examinations. He was informed that the Pennsylvania board found that the "Jersey City Hospital gives a fairly good course but that it is deficient in laboratory work as required by the Pennsylvania law." In Pennsylvania, two months' exclusive laboratory work is required. The young man then went to the United Hospital at Portchester, where he had three months of intern work, two months of which were spent in the laboratory. He then went to the Delaware Hospital, where he spent thirteen months, two months of which he spent at laboratory work. After finishing eight months of this additional sixteen months of interning, he applied to the Pennsylvania board for examination and then received a letter which stated that "it would be necessary for you to have two months' *exclusive* laboratory service and training in the technic of x-ray work,

sufficient to enable you to handle a machine safely and secure good experience in plate reading. This should be received in one of our approved hospitals in Pennsylvania."

Another young man, who finished his internship, June 1, 1925, and who is a graduate of Jefferson Medical College, has made a statement to the committee that three of his classmates were willing and anxious to serve their internship with him at the Jersey City Hospital, but before doing so wrote to the Pennsylvania board and were informed that the board could give them no promise as to the acceptability of the Jersey City Hospital and advised them to take an internship in Pennsylvania, and referred the writer to the dean of his school for a list of approved hospitals within their state.

There are many other facts which have convinced this committee that the statute under which the Pennsylvania board acts was deliberately sought from their state legislature for the express purpose of holding prospective interns from service in other states and securing them for Pennsylvania hospitals. The result has been to inflict great hardships on the New Jersey hospitals, and hence, on hundreds of patients.

The state board of medical examiners of New Jersey rates its hospitals on questionnaires, on personal inspection and on the rating supplied them by the American Medical Association. It is manifestly impossible for any state board to classify properly any hospital outside its own state and it therefore becomes necessary for each board to accept the classification of the board in the particular state under consideration or to accept the list of hospitals approved by the American Medical Association.

New Jersey, up to May 7, accepted, without question, the ratings of the Pennsylvania board as regards Pennsylvania hospitals, and we only ask that the same courtesy be extended to us. We cannot, however, allow the Pennsylvania board to set itself up as a board superior to the New Jersey Board of Medical Examiners and the American Medical Association for rating hospitals in New Jersey. We feel that when our board classifies a hospital in our own state, it should be accepted by the boards outside our state.

This committee feels that it is a great injustice to any man who has served a general internship in an approved hospital to be refused examination for the practice of medicine and surgery because he may not have had an *exclusive* two months spent in a laboratory.

It is not retaliation on the part of the New Jersey board, as Dr. Pepper states, but simply a matter of self-protection for our own hospitals.

This committee further feels that, while the unjust and arbitrary attitude of the Pennsylvania board has forced the New Jersey board into a defensive position, the young man who has taken a Pennsylvania internship in good faith should not be made to suffer. The committee, therefore, recommends that the resolution of May 7 stand as regards all interns commencing their internships subsequent to May 7, 1925, but that any man who served his internship previous to this date should be allowed to apply for examination, and that his particular application be accepted if all his other qualifications are satisfactory.

We recommend that this change also apply to applications for reciprocity.

Respectfully submitted,

CHARLES B. KELLEY, Chairman.
CHARLES A. GROVES.
J. J. MCGUIRE.
Hospital Committee, N. J. State Board of Medical Examiners.

ALEXANDER MACALISTER, Secretary.
State Board of Medical Examiners of New Jersey.

TETRA-ETHYL LEAD

To the Editor:—Dr. Edward H. Marsh, secretary of the Public Health Council of the New York State Department of Health, has called our attention to an error in our article on Tetra-Ethyl Lead (THE JOURNAL, May 16), an error which we wish to correct. We stated that the use of ethyl gasoline had been forbidden in the states of New York and New Jersey subsequent to the outbreak of serious poisoning in the Standard Oil plant in Bayway, and that this prohibition was rescinded after the report of the Bureau of Mines was published. Dr. Marsh informs us that, so far as the state of New York is concerned, no action forbidding the use of ethyl gasoline was ever taken by the health authorities, only the sale and distribution to the public of tetra-ethyl lead in concentrated form. Sale of this compound to refineries, bulk stations and filling stations was permitted, but in sealed containers only. This regulation was passed by the Public Health Council, Jan. 30, 1925, and took effect March 1. Therefore our statement that the use of ethyl gasoline was at first forbidden and later permitted is incorrect.

ALICE HAMILTON, M.D., Boston.
PAUL REZNIKOFF, M.D., New York.
GRACE M. BURNHAM, New York.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

PREVENTION OF MOSQUITO BITES

To the Editor:—Will you please inform me if you know of any external applicant for the prevention of mosquito bites?

J. F. RIORDAN, M.D., Berlin, Wis.

To the Editor:—Is there a serum by which a person can be immunized against the poison of mosquito bites? Do you know of anything that will prevent mosquito bites? Citronella, oils and various preparations have not proved valuable.

A. J. PRICE, M.D., Rochester, N. Y.

ANSWER.—No serum has been discovered that will immunize a person against the poison of mosquito bites. Numerous preparations have been recommended to be applied to exposed parts of the body to prevent mosquitoes from biting. Among these are oil of pennyroyal, resorcin monacetate (euresol), various forms of petroleum, and powders and washes simular to the following:

	Gm. or C.c.
Oil of eucalyptus	25
Talc	50
Starch	325
Oil of cinnamon	1
Oil of patchouli	1
Oil of santal	4
Alcohol to make	400

USE OF BENEDICT'S SOLUTION AS TEST FOR GLUCOSE

To the Editor:—In the literature that I have available, I can find no answer to the following questions, which have been put to me by fellow practitioners and which seem to me pertinent: 1. What is the smallest percentage of sugar in urine that ought to be detected by Benedict's qualitative solution? Can that figure, if it exists, be taken as a standard of the proper preparation of the solution? If not, what can be so taken? 2. With Benedict's quantitative solution, and a urine of less than 2 per cent. sugar, one sometimes gets a loss of color only with no precipitation of the white copper sulphocyanate. Must one get this precipitate, or does the point where all blue disappears indicate the end-point of the reaction? These questions arose here as the result of a variation in the results obtained in the laboratory of the hospital and of individuals. The laboratory prepares its own solutions from pure ingredients according to directions set down in text-books, while the individuals procure their solutions from the drug stores.

GEORGE S. SILLIMAN, M.D., Rutland, Vt.

ANSWER.—1. According to the statement of Benedict, his qualitative solution will detect glucose in as low concentration as from 0.01 to 0.02 per cent., provided the urine is of low dilution and the test is properly performed. Of impor-

tance in this test is the boiling of the mixture, after the addition of the urine, for from two to three minutes and allowing the boiled mixture to stand until cool. If the quantity of glucose is low (below 0.3 per cent.), the characteristic precipitate forms only on cooling. While there is probably no absolute figure that may be stated as a standard of the proper preparation of this solution, if a 0.3 per cent. glucose solution fails to react, especially after cooling, it is very probable that something is wrong with the solution iself.

2. In the use of Benedict's quantitative test for sugar, the complete decolorization of the solution is taken as the end-point of the reaction; but the heavy white precipitate of cuprous thiocyanate should form before the decolorization is complete, as this compound is a reduction product of the cupric thiocyanate originally in the solution. If this white precipitate of the cuprous thiocyanate is not obtained, provided glucose is present, there is probably something faulty with the solution.

THE WILKENS-FIRST CANCER CURE

To the Editor:—Will you kindly give me what information you have in regard to Dr. F. H. First of Rock Island, Ill., who claims to be able to remove cancers by plaster? I have a patient who is desirous of trying the plaster treatment.

S. H. G., Michigan.

ANSWER.—We have in our files some literature that has been sent out during the last ten years by an advertising "cancer cure" quack, one J. K. Wilkens of Muscatine, Iowa, a town that is about 30 miles from Rock Island, Ill., where Dr. F. H. First practices. Ten years ago we began to receive inquiries about Wilkens and his "cure," which, apparently, is an escharotic paste. Wilkens is not a physician. We understand that he used to charge, if he does not still, from $150 to $300 for his alleged cure and, like most of his ilk, claimed that he did not use the knife or any other instrument. Some years ago we learned that Wilkens had informed some of his prospective victims that his treatment was endorsed by Dr. F. H. First and used in a hospital in Rock Island. A letter was written to Dr. First asking for the facts in the case. He replied, admitting that he was using the Wilkens' preparation and was "about convinced that in this ointment we have a treatment that surpasses surgery in the cure of cancer." He stated, further, that he had had some cases that "were refused operation, as they were past help, and they are well now and have been for some time." Another letter was written to Dr. First stating that it was assumed that he knew the composition of the product he had been using and that as Wilkens himself gave no information on this point, it would be desirable to pass on to the medical profession information regarding the composition of the oihtment which "surpasses surgery in the cure of cancer." Dr. First replied that until such time as he could "report a list of cured cases" he could "see no reason to make the treatment public." This was in 1917, eight years ago. So far as we have been able to learn, Dr. First has never reported a list of cured cases nor given the profession the formula. Incidentally, a Rock Island paper in October, 1918, reported that Dr. F. H. First of that city had discovered and had for some time been using a serum for influenza "that has proven successful in almost every instance."

RINGER'S SOLUTION—ISOTONIC SOLUTIONS

To the Editor:—For some time past I have been using the following formula for irrigating the nasal fossae and have found it grateful to patients: Sodium chlorid, 9 gm.; sodium bicarbonate, 1 gm.; potassium chlorid, 0.1 gm.; calcium chlorid, 0.1 gm. By adding the ingredients mentioned to a quart of water I have considered the resulting solution isotonic, with the blood and similar to Ringer's solution.

I notice that Ringer's original solution contained no sodium bicarbonate. Is this formula now considered Ringer's solution and isotonic with the blood? If any drug houses are putting out tablets or powders of this formula so that one tablet or one powder to a quart of water will make the proper solution, please let me know.

C. NORMAN HOWARD, M.D., Warsaw, Ind.

ANSWER.—When a solution is isotonic with the blood, it has the same osmotic pressure as that of blood (this varies often, depending, for example, on whether it is referred to frog's tissues, or to mammalian tissues). The official physiologic solution of sodium chlorid is isotonic with the blood, though containing only one ingredient.

In work, particularly on excised tissues, the deleterious effects of single salt solutions have led to the introduction of solutions containing other ions, thus better adjusted to the physiologic requirements. These balanced solutions are of less importance for injections in living animals, in which even single salt solutions are rapidly adjusted by exchange with the tissues and tissue components.

The mixture employed by our correspondent is slightly hypertonic. The formula for Ringer's solution usually given in textbooks is:

Sodium chlorid	0.7	per cent.
Potassium chlorid	0.03	per cent.
Calcium chlorid	0.025	per cent.

It has been shown, however, that if such a solution is made slightly alkaline, it offers a still more favorable medium for the heart. As used in physiologic laboratories when adapted to frogs' hearts, the following formula is employed:

Sodium chlorid	0.6	per cent.
Potassium chlorid	0.0075	per cent.
Calcium chlorid (dried)	0.01	per cent.
Sodium bicarbonate	0.01	per cent.

For mammalian purposes, a concentration often used is:

Sodium chlorid	8.5 gm.
Potassium chlorid	0.3 gm.
Sodium bicarbonate	0.2 gm.
Calcium chlorid (crystals)	0.2 gm.
Water	1,000 c.c.

The formulas for Ringer's solution vary in minor details, according to different sources.

In making a Ringer's solution containing both sodium bicarbonate and calcium chlorid, the sodium bicarbonate must be completely dissolved before adding the calcium chlorid (also dissolved in water) to avoid precipitation. Obviously, therefore, it would be incompatible to have these ingredients in a single powder or tablet. A number of pharmaceutical manufacturers do carry a "Ringer's Tablet" in which there is no sodium bicarbonate. These are intended for use in preparing isotonic solutions of certain local anesthetics.

EFFECT OF ALTITUDE ON HIGH BLOOD PRESSURE

To the Editor:—Can you give me an idea of the effect of altitude (7,000 feet) on high blood pressure of moderate degree with a mitral murmur?

PAUL R. HOWARD, M.D., Kewanee, Ill.

ANSWER.—With each increase in altitude there is a corresponding decrease in oxygen pressure, which means a less amount of oxygen by weight per unit volume of air. To supply the needs of the tissues for oxygen, this decrease in the oxygen available with each respiration must be compensated for by an increased minute volume of inspired air, by an increased minute volume of blood delivered by the heart, and to a less important extent by an increase in the oxygen carrying power of the blood, effected by an increase in the number of circulating red corpuscles. The type of response varies with individuals. In some, the respiratory response will outweigh the circulatory, and in some there may be a relatively less respiratory response, necessitating a relatively increased circulatory response.

The circulatory response is brought about by an increase in the pulse rate, to a less determinable extent by an increase in the volume per beat, and by a peripheral vasodilatation, to accommodate the increased flow.

The circulatory response again varies with individuals. Normally there is very little acceleration of the pulse before 8,000 feet, and no increase in blood pressure before 10,000 feet or higher. In some persons the pulse may accelerate at a much lower level, or the peripheral vessels not dilate normally, and the blood pressure rise at a lower level, or show a more marked rise than normal.

Those living at high altitudes show the same blood pressures as those at sea level, and a normal person going from sea level to 7,000 feet would show little or no change in pulse rate, and no change in blood pressure.

In considering any given case in which there is a possibility of existing cardiac or arterial pathologic changes, weight must be given to the following points: The heart has more work to do at a higher altitude. The particular person may have a respiratory response less than normal, necessitating a relatively greater circulatory response. The peripheral vessels may not dilate normally to accommodate the increased flow, and there may be a rise in blood pressure at a lower level. Patients with heart disease in the air service frequently showed an abnormal response, depending on the condition of the heart and vessels. Cases are encountered clinically in which a previously damaged heart becomes worse at a moderately high altitude.

SWIMMING POOL CONTROL

To the Editor:—I am contemplating building a private swimming pool, on a country place, 40 by 60 feet. What is the cheapest and most efficient method of keeping the water pure? Replacing the water frequently would be out of the question.

A. J. SIMPSON, M.D., Chillicothe, Mo.

ANSWER.—The four chief methods of swimming pool disinfection are by means of ultraviolet ray apparatus, chlorin, ozone or by changing the water daily. Of course, it is almost useless to empty and refill a pool each day unless care is taken to clean the pool when empty. As our correspondent points out, replacing the water frequently would be out of the question. For the type of pool described, the chlorin method of treatment would be probably the most satisfactory. The efficiency of the chlorin will depend, of course, on the composition of the water (particularly the amount of organic matter present) and the strength employed.

References to swimming pool control are as follows:

Disinfection of Swimming Pools, THE JOURNAL, Sept. 25, 1915, p. 1129.

Ravenel, M. P.: Hygiene of Swimming Pools, THE JOURNAL, Oct. 19, 1912, p. 1424.

Whittaker, H. A.: Investigations on Swimming Pools at University of Minnesota, THE JOURNAL, June 22, 1918, p. 1901.

Manheimer, W. A.: Reliability of Ozone in Swimming Pool Disinfection, THE JOURNAL, June 29, 1918, p. 1991.

Purification of Swimming Pools, Current Comment, THE JOURNAL, April 20, 1918, p. 1163.

Sanitation of Swimming Pools, THE JOURNAL, Oct. 11, 1919, p. 1153.

Craster, C. V.: Outdoor Pool: Obvious Need for Clear Pools, *Am. J. Pub. Health* **9**: 823 (Nov.) 1919.

Robinson, J. W.: Fallacy of Usual Tests for Swimming Pools, *California State J. Med.* **20**: 60 (Feb.) 1922.

Simons, G. W., Jr.: Sanitary Control of a Public Swimming Pool, *Am. J. Pub. Health* **11**: 234 (March) 1921.

Fair, G. M.: Inferential Index of Swimming Pool Purity, *Am. J. Pub. Health* **10**: 502 (June) 1920.

Manheimer, W. A.: Comparison of Methods of Disinfection of Swimming Pools, *J. Infect. Dis.* **20**: 1 (Jan.) 1917.

Some Factors in Control of Swimming Pools, *J. Infect. Dis.* **21**: 484 (Nov.) 1917.

Manheimer, W. A.: Application of Ozone to Purification of Swimming Pools, *Pub. Health Rep.* **33**: 267 (March 1) 1918.

Manheimer, W. A.: Standards for Legislation of Swimming Pools, *M. Rec.* **93**: 418 (March 9) 1918.

Manheimer, W. A.: Reliability of Ozone in Disinfection of Swimming Pools, THE JOURNAL, March 16, 1918, p. 799.

Smith, C. E., Jr., and Schoberg, H. M.: Preliminary Survey of Local Conditions in Sanitation of Swimming Pools, *Am. J. Pub. Health* **8**: 424 (June 1) 1918.

Sanitary Swimming Pools and Their Control, editorial, THE JOURNAL, Dec. 2, 1916, p. 1676.

Levine, M.: Sanitary Control of Swimming Tank, *J. Infect. Dis.*, March, 1916.

Problem of Sanitary Swimming Pools, editorial, THE JOURNAL, April 1, 1916, p. 1028.

Thomas, S. J.: Disinfection of Swimming Pools, THE JOURNAL, Sept. 25, 1915, p. 1104.

Literature on Hygiene of Swimming Pools, THE JOURNAL, Nov. 16, 1912, p. 1812.

Crane, A. M.: Swimming Pool Standards: Uniform and Practicable Regulations, *Nation's Health*, February, 1924.

Lyster, W. J.: Hygiene of the Swimming Pool, THE JOURNAL, Dec. 16, 1911, p. 1992.

Sanitation of Swimming Pools, *American Homes* (supplement) **9**: 20 (April) 1912; *Scient. Am. Supplement*, Jan. 27, 1912, p. 59.

Tully, E. J.: Hygiene of Swimming Pools, *Am. J. Pub. Health*, March, 1912.

Porter, H. F. J.: Menace of the Bathing Pool, *Survey*, July 27, 1912, p. 588.

PILOCARPIN IN URTICARIA

To the Editor:—1. Is pilocarpin used in urticaria? 2. Have fatalities been reported in the use of the drug? 3. Where can I obtain a description of Professor Heilner's treatment of arteriosclerosis with aortic substance?

HENRY KENDALL, M.D., New York.

ANSWER.—1. R. Ghosh in his Materia Medica and Therapeutics, Calcutta, 1925, states that pilocarpin has been used with some benefit in urticaria. Sollmann, Cushny and the U. S. Dispensatory do not mention this drug in connection with urticaria. Pusey, Sutton and Schamberg, in their books on the skin, mention pilocarpin for use in urticaria.

2. We find in recent literature no record of fatalities from the use of pilocarpin. Pharmacologists warn against its use in pulmonary diseases, and point out that it causes death by paralysis of the heart or edema of the lungs.

3. We have no record of "aortic substance" or of its use in arteriosclerosis. There are, however, two articles by E. Heilner on Arteriosclerosis:

Causal Treatment of Arteriosclerosis, *München med. Wchnschr.* **68**: 443 (April 5) 1921.

Causal Treatment of Arteriosclerosis, *München med. Wchnschr.* **67**: 501 (April 30) 1920.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

ALABAMA: Montgomery, July 13. Ch., Dr. Samuel W. Welch, Montgomery.

CONNECTICUT: Hartford, July 14-15. Sec., Reg. Bd., Dr. Robert L. Rowley, 79 Elm St., Hartford.

CONNECTICUT: New Haven, July 14. Sec., Homeo. Bd., Dr. Edwin C. M. Hall, 82 Grand Ave., New Haven.

DISTRICT OF COLUMBIA: Washington, July 14. Sec., Dr. Edgar P. Copeland, Stoneleigh Court, Washington.

HAWAII: Honolulu, July 13. Sec., Dr. G. C. Milnor, 401 S. Beretania St., Honolulu.

INDIANA: Indianapolis, July 14-16. Sec., Dr. W. T. Gott, 333 State House, Indianapolis.

MASSACHUSETTS: Boston, July 14-16. Sec., Dr. Charles E. Prior, 144 State House, Boston.

PHILIPPINE ISLANDS: Manila, Aug. 11. Sec., Dr. Jose V. Gloria, 686 Rizal Ave., Manila.

SOUTH DAKOTA: Deadwood, July 21. Dir., Dr. H. R. Kenaston, Bonesteel.

Arizona April Examination

Dr. W. O. Sweek, secretary, Arizona Board of Medical Examiners, reports the written examination held at Phoenix, April 7-8, 1925. The examination covered 10 subjects and included 100 questions. An average of 75 per cent. was required to pass. Four candidates were examined, including one osteopath, all of whom passed. Seven candidates were licensed by reciprocity, and three by endorsement of their credentials. The following colleges were represented:

PASSED	Year Grad.	Per Cent.
College of Medical Evangelists	(1922)	91.2
University of California	(1923)	86.1
Dartmouth Medical School	(1908)	78.1
Osteopath	(1914)*	....

LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Rush Medical College	(1917)	Wisconsin
Tulane University	(1921)	Louisiana
Creighton Medical College	(1921)	Nebraska
University of Pennsylvania	(1916)	Penna.
University of Nashville	(1903)	W. Virginia
University of Tennessee	(1905), (1919)	Tennessee

ENDORSEMENT OF CREDENTIALS	Year Grad.	Endorsement with
McGill University, Montreal	(1921)	Canada
School of Medicine and Pharmacy of Jalisco, Mexico	(1919)†	Mexico
University of Tomsk, Siberia, Russia	(1913)†	Russia

* Granted license to practice medicine and surgery.
† Graduation not verified by the American Medical Association.

Connecticut March Examination

Dr. Robert L. Rowley, secretary, Connecticut Board of Medical Examiners, reports the written examination held at Hartford, March 10-11, 1925. The examination covered 7 subjects and included 70 questions. An average of 75 per cent. was required to pass. Of the 21 candidates examined, 12 passed and 9 failed. Five candidates were licensed by endorsement of credentials. The following colleges were represented:

PASSED	Year Grad.	Per Cent.
Georgetown University	(1924)	82.1
Yale University	(1924)	82.2
University of Maryland	(1924, 2)	80.0, 86.1
Harvard University	(1923)	90.4
Tufts College Medical School	(1923)	78.3
University and Bellevue Hospital Medical College	(1910)	76.4
University of Buffalo	(1924)	76.6
Jefferson Medical College	(1924)	78.8
McGill University	(1922)	79.5
Queen's University	(1922) 77.6,	(1924) 79.2

FAILED	Year Grad.	Per Cent.
Tufts College Medical School	(1924)	70.4
Fordham University School of Medicine	(1916)	68.6
McGill University	(1924)	71.0
University of Montreal	(1924)	70.0
University of Naples, Italy	(1919)* 25.8, (1921)* 55.1, (1922)*	62.4
University of Pecs, Hungary	(1923)*	69.6
Donskey University, Russia	(1920)*	66.1

ENDORSEMENT OF CREDENTIALS	Year Grad.	Endorsement with
College of Physicians and Surgeons, Chicago	(1907)	Illinois
Medical College of Indiana	(1905)	Indiana
Johns Hopkins University	(1917)	Maryland, (1920) Maryland
University of Virginia	(1920)	Maryland

* Graduation not verified by the American Medical Association.

Book Notices

THE MICROSCOPE. An Introduction to Microscopic Methods and to Histology. By Simon Henry Gage. Dark-Field Edition (14th). Cloth. Price, $3.50 net. Pp. 517, with 275 illustrations. Ithaca, N. Y.: The Comstock Publishing Company, 1925.

This book opens with interesting discussions of the parts of the microscope and proceeds on through its manifold uses to such exacting problems as measuring by means of the microscope, drawing by the aid of photography and the use of the microspectroscope. The large chapter on dark field microscopy gives this, the fourteenth edition of the book, its name, the dark field edition. Improvements discussed include (1) the single objective binocular for all powers of the microscope, (2) the perfection of photographic light filters and dry plates sensitive to the whole spectrum, (3) the glass filter used with a Mazda lamp giving light of daylight quality, and (4) a dark field illuminator for all powers of the microscope. The author considers these advancements aids to furnish material for interpretation. He said long ago: "In considering the real greatness of the microscope and the truly splendid service it has rendered, the fact has not been lost sight of that it is, after all, only an aid to the eye of the observer, only a means of getting a larger image on the retina than would be possible without it. The appreciation of this image must always depend on the character and training of the appreciating brain behind the eye."

THE EXTRA PHARMACOPOEIA OF MARTINDALE AND WESTCOTT. Revised by W. Harrison Martindale, Ph.D., F.C.S., and W. Wynn Westcott, M.B., D.P.H. Eighteenth edition. In two volumes. Vol. I. Boards. Price, 27 shillings 6 pence net. Pp. 1163. London: H. K. Lewis & Co., Ltd., 1924.

Probably no other commentary on drugs printed in a foreign country is so well known in the United States. The popularity of the work in Great Britain is attested by this, the eighteenth edition. Every page (exclusive of the index) of the first volume of the new edition is filled with critical information useful alike to the physician, pharmacist, analytic chemist, dentist, and manufacturer of pharmaceuticals or chemicals. The latest information on the newer drugs such as benzyl succinate, butyn, mercurochrome-220 soluble, synthetic cocain, carbon tetrachlorid (in hookworm disease) and bismuth compounds (in syphilis), is given in condensed form. References are given throughout which render the book valuable to the research worker. Some concept of the scope of the work may be obtained from the index and posologic table, which lists about 10,000 items, occupying ninety-two pages of two columns each. While this work may not be expected to displace the U. S. Dispensatory in this country, the amount and variety of succinct information that it contains renders it extremely useful to American workers.

UEBER DEN SCHLAF DES KINDES. Von Dr. Paul Karger, Privatdozent für Kinderheilkunde an der Universität Berlin. Abhandlungen aus der Kinderheilkunde und Ihren Grenzgebieten. Beihefte zum Jahrbuch für Kinderheilkunde, Herausgegeben von A. Czerny. Heft 5. Paper. Price, 2.40 goldmarks. Pp. 50, with 48 illustrations. Berlin: S. Karger, 1925.

The author studied only one phase of sleep—spontaneous muscular activity. By means of a simple lever device attached to one of the legs of the bed he was able to record continuously every movement of the sleeping child. The conclusions drawn from nearly 300 such sleep "actograms" are of interest not only to the pediatrician and physiologist, but to all those who are in any way concerned with child hygiene. The age of the children varied from 2½ to 12½ years, and they did not know that their sleep was being studied. The author considers the absence of motor activity as an indication of the depth of sleep. He found that during the first hour of sleep the movements were very pronounced, but were absent during the rest of the sleep. Waking the child in the middle of the night resulted in continuous activity during the remainder of the night. Home work done in the evening, playing with toys just before going to bed, and fairy tales at bedtime resulted in a very disturbed sleep. Putting a child accustomed to sleep alone into a room with other children increased its motor activity. Variations in temperature and light had no effect on the character of the "actogram." Hypnotics, with the exception of potassium bromid, did not decrease the motor activity during sleep, when given in therapeutic doses. Large doses producing narcosis abolished all movements. Phenobarbital seemed to have a delayed narcotic action. Atropin and caffein medication caused continuous activity throughout the entire night. Sleep was very light and disturbed in children suffering from epidemic encephalitis. Curiously enough, sleep was found to be quiet in fever, but the child was restless the following night, after its temperature was lowered by the administration of amidopyrin. Hunger, strangely, resulted in quiet sleep, whereas feeding increased the motor activity. The value of the control experiments is somewhat decreased by the fact that the "actograms" of the same child taken on consecutive nights varied from each other to a considerable extent. Interpretation of the results is rendered all the more difficult because no perfectly healthy children were employed in this study.

AN INTRODUCTION TO ORGANIC CHEMISTRY. By Alexander Lowy, Ph.D., Professor of Organic Chemistry, University of Pittsburgh, and Benjamin Harrow, Ph.D., Associate in Physiological Chemistry, College of Physicians and Surgeons, Columbia University. Cloth. Price, $3. Pp. 389, with illustrations. New York: John Wiley & Sons, Inc., 1924.

This brief, readable textbook of organic chemistry is designed to cover both the theory of organic chemistry and some of the applications, especially those related to medicine, dentistry, pharmacy, agriculture and the biologic sciences. The volume does give a somewhat comprehensive view of the field as outlined; but, obviously, to cover all of the material in a rather limited space, the discussion on individual topics must be abbreviated somewhat. For instance, the reactions of the Grignard reagent are given incidentally in the chapter on alcohols: four equations are given; two are type reactions and two are reactions illustrating specific examples. Subjects of a physical organic nature, such as the relation between structure and physical properties, are almost unmentioned. The equations are given in large type and are easy to follow. Whenever the benzene nucleus is involved, a hexagon represents it. This takes up considerable space, but the clarity is enhanced and the assimilation of the material is made easier. Reading references are given at the end of many of the chapters. This list is supplemented by a larger bibliography at the end of the book.

LABORATORY DIAGNOSTIC METHODS. PATHOLOGICAL, BACTERIOLOGICAL, SEROLOGICAL AND CHEMICAL. A Manual for Physicians, Medical Students and Laboratory Technicians. By John A. Kolmer, Professor of Pathology and Bacteriology in the Graduate School of Medicine of the University of Pennsylvania, and Fred. Boerner, Associate in Bacteriology in the Graduate School of Medicine of the University of Pennsylvania. Cloth. Price, $2.50. Pp. 338. New York: D. Appleton & Company, 1925.

On the odd numbered pages of this book are concise statements of the technic of laboratory tests. The first section covers clinical pathologic methods. It is a revision of Pepper and Klaer's Manual on Clinical Pathology, which twelve years ago was revised by Pepper and Kolmer for use in the University of Pennsylvania School of Medicine. The second section covers bacteriologic methods, and the third section covers serologic methods. There are no illustrations and no discussions of the value of the tests in diagnosis and treatment. The book is a comprehensive collection of technical methods which will be especially convenient for physicians who are familiar with laboratory work.

DIE CHIRURGIE. Eine Zusammenfassende Darstellung der allgemeinen und der speziellen Chirurgie. Unter Mitarbeit hervorragender Fachmänner herausgegeben von Prof. Dr. M. Kirschner, und Prof. Dr. O. Nordmann. Paper. Lieferung I (I. Band). Price, 16 marks. Pp. 396, with 193 illustrations. Lieferung 2 (III. Band). Price, 18 marks. Pp. 386, with 216 illustrations. (Sold in sets only.) Berlin: Urban & Schwarzenberg, 1925.

"Surgery," edited by Kirschner and Nordmann, when finished, will be a six volume system covering the field of general surgery and the surgical specialties. The aim of the editors is to consider under one heading anatomy, pathology, clinical course and surgical technic. The system is offered to the public in novel fashion. As the manuscript of any one chapter or group of chapters is obtained, it is published as a section. These sections are to appear monthly. No attempt

has been made to issue the sections in the sequel of the finished work. Whenever a section is issued which, with some of those already published, completes a volume, an adjustable binder is furnished. In this manner the publishers expect to have the system completed in about two years. Section 1 comprises the first half of Volume I and Section 2 about the same proportion of Volume III. Section 1 deals with general surgical topics, such as the history of surgery, anesthesia, the roentgen ray and radium. Section 2 contains the chapters on surgery of the lymph glands, surgery of the breast, surgery of the thyroid and other glands of internal secretion, and surgery of the hypophysis. Judging from Section 2, this system of surgery will be a valuable addition to surgical literature. The subjects are taken up in a most careful, systematic and detailed manner. Anatomy, pathology, clinical course, operative procedures and technic, are dealt with thoroughly. The illustrations in black and white and especially those in color are good, and a bibliography is appended to each chapter. The difficulty in judging the worth of the completed system from the few chapters at hand is obvious. Section 2, however, gives rich promise for the excellence of the finished work.

THE NURSE AND THE FAMILY. A Visiting Nurse's Handbook for Teaching the Members of the Family the Simpler Phases of Bedside Care and Personal and Home Hygiene. Paper. Pp. 122. New York: Metropolitan Life Insurance Company, 1925.

The visiting nurse as a teacher is the theme of this attractive booklet. A large amount of plain information is included, in an orderly arrangement. Although this knowledge is already familiar to the properly educated public health nurse, the book may be useful to her to recall how elementary her instruction should be to reach the understanding of the patient's family. The teaching embraces the care of the patient and the safety of the family and community.

DIE AUGENERKRANKUNGEN DES KINDESALTERS IN IHRER BESONDERHEIT. Von Dr. L. Heine, o. ö. Professor und Direktor der Universitäts-Augenklinik in Kiel. Abhandlungen aus der Kinderheilkunde und ihren Grenzgebieten. Beihefte zum Jahrbuch für Kinderheilkunde, Herausgegeben von A. Czerny. Heft 6. Paper. Price, 3 goldmarks. Pp. 52, with 9 illustrations. Berlin: S. Karger, 1925.

This is undoubtedly the elaboration of a series of lectures before a pediatric society. Although the entire subject matter and some rather indifferent illustrations are here contained within the small compass of a brochure, the complete range of ophthalmology in children is covered most thoroughly, not from the ophthalmologic nor yet from the pediatric standpoint, but rather from the symptomatological and etiologic points of view. The various diseases that may affect the various parts of the eye are mentioned and described most briefly, and the etiologic phase of each discussed somewhat more at length. The necessity of accurate refraction in school children occupies a prominent position, and brief directions for determining whether a gross error of refraction exists are given. The question of muscular anomalies is handled in a firm and sensible manner. Among the finer points of the book are the only too few pages devoted to a discussion of the etiologic importance of scrofulosis (in the sense as used by Czerny), tuberculosis and syphilis, especially of the hereditary type. A comparison is made between the importance of these three diseases as etiologic factors of ocular disease in children and in adults. The author has suceeded in condensing into a comparatively few pages the essentials of ophthalmic disease in children and, as a result, this booklet should form a part of the working library of every medical man who has to deal with children's diseases.

A TREATISE ON HYGIENE AND PUBLIC HEALTH. With Special Reference to the Tropics. By Birendra Nath Ghosh, F.R.F.P. & S., Examiner in Hygiene and Pharmacology, University of Calcutta. Fifth edition. Cloth. Price, 9 shillings 6 pence net. Pp. 586, with 99 illustrations. Calcutta: Hilton & Company, 1924.

This is a fifth edition of a book first published in 1912. The discussions include all phases of public health work from the standpoint of conditions existing in India. Most of the discussions are brief, but down to date. The book will be useful as a reference volume for those interested particularly in conditions in tropical countries.

Miscellany

CHEMISTRY IN THE SERVICE OF PHARMACEUTICAL MEDICINE*

PAUL NICHOLAS LEECH, PH. D.
Director, American Medical Association Chemical Laboratory
CHICAGO

Twenty years ago, chemistry was as a June graduate. Today, chemistry is mature, self-supporting and highly respected. It has reached this position of scientific affluence by its attainments not only in its own province, but also in its interdependencies, including pharmaceutics and medicine. Two decades ago chemistry, trembling, awed, was confronted with theories too fundamental in character to be ignored and by practical problems of vast importance economically. From Denmark had come the Tablets of Stone of the genius Arrhenius, commanding chemists to follow the laws of electric charges, the theory of ions, in order to blast new trails. This in itself was no easy dictum. Equally insistent were the physicists with their applications of electricity; the remarkable findings of Roentgen and the astonishing facts of atomic disintegration presented by the Curies with their work on radium—all had to be adopted. Nor were the practical problems less difficult. There were urgent orders for new chemicals; the automobile industry was demanding new methods of processing steel; the ceramic industry, the oil, the paint, the rubber industries, and a host of others were finding they could no longer make progress by relying on empiricism alone. Almost every endeavor of human progress was looking toward the science of chemistry for aid. Chemistry—baccalaureate chemistry—faced no easy pioneering. It was thus in both Europe and America. But here there were even other demands: public health was receiving unusual attention. The Food and Drugs Act, which was to call for the services of hundreds of chemists and still more for the devising of accurate analytic methods, was being agitated in Congress. To medicine manufacturers the period may be looked on as a mile-stone marking the beginning of a new era of pharmaceutical progress; one which I am sure has been more than welcomed by the representative manufacturers.

It was at this same period, too, that organized medicine created the Council on Pharmacy and Chemistry, to be followed shortly by the installation of the A. M. A. Chemical Laboratory. The chemistry which was aiding agriculturists, which was recreating industry, which was providing the stimulus for university research, was also being called on to advise in the battle against disease. It was to become the pilot to many of the pharmaceutical manufacturers, the adviser to the medical profession, and the watchman of public health. In that field common to both the pharmaceutical manufacturer and to us, what were the conditions as seen in 1905? The domination of Germany in chemical manufacture was supreme. Synthetics were being popularized, the American physician and the laymen alike revering the new synthetics from abroad. They were being introduced in large numbers. As has been said before, it seemed that if a coal tar derivative could not find a place as a dye per se then it surely must have some inherent quality to justify its use as a drug. Synthetic medicinal chemistry in America was neglected. The average American pharmaceutical house either marketed the German drugs in order to make its catalogue complete, or prepared decoctions and tablets mainly from plant substances. In the case even of the remedies sold to physicians, frauds were not altogether uncommon, deception

* Address before American Pharmaceutical Manufacturers Association, White Sulphur Springs, W. Va., June 23, 1925.

—unintentional or intentional—was rampant, and medical journal advertising teemed with statements concerning the composition of remedies which any chemist familiar with medicines would know were untrue. Such were the conditions as first surveyed by the A. M. A. Chemical Laboratory.

But it has been the fortunate privilege of the A. M. A. Chemical Laboratory to note the improvement wrought year by year by the earnest men of both the medical profession and the pharmaceutical industry. What were the products about which organized medicine sought chemical information as soon as its laboratory was functioning? A good example is "Atoxyl"—the magic drug of that hour. Its chemical composition was presumably declared, but the claims made for it could not go unchallenged. The composition was shown to be wrong, the product not constant from lot to lot, and the declaration of maximum arsenic administration was found faulty when subjected to chemical scrutiny. Be it said to the credit of the firm, however, that when the evidence was shown, the claims were modified. Looking from our perspective today, the criticism is not that these claims in themselves were made, but that the manufacturer of a *chemical* did not have adequate *chemical* advice. "Atoxyl," I believe, was conscientiously exploited; that is, the claims were made in good faith; but if the same claims were made for a similar product today, we would not be so charitable in the statement, because now there is no excuse whatever for lack of competent scientific advice. A more widespread evil was the ethical proprietary with the "paper chemistry formula," impressive, decorative, reflecting discredit on both the house that promoted it and the physician who prescribed it. The frauds, too, were present; it is only necessary to recall such chemical jokes as zyme-oid and capudine, and others which found the laboratory third degree quite distasteful, though the therapeutic claims cannot be considered so flippantly.

THE INTERMEDIATE PERIOD

By 1915, ten years later, the change that had taken place was indeed encouraging. Better preparations had been introduced with due consideration of the chemistry. Frauds were relatively rare: only one real outstanding fraud in drugs sold to physicians (I am not speaking of the "patent medicines") do I remember—Syphilodol, the wonderful French antisyphilitic extensively advertised by appealing to the patriotic sentiment and cordial entente between France and the United States. The ampules, beautifully encased, contained nothing more potent than water.

The false statements concerning the composition of many remedies, particularly when made in ignorance, had been modified. There still were a goodly number of secret remedies—so-called ethical proprietaries—which required the attention of the analytic chemist, although their number was lessening.

But the period of greatest stress was during the war. The shortage of German synthetics had to be met, and met it was, but not without difficulty. With praiseworthy efforts, many firms arose to meet this peculiarly chemical emergency. The troubles that occurred in the plants can be told only by those actually engaged in the work at that time, yet it was more than evident that a struggle was going on—lack of competent help, lack of experience. To illustrate: One firm, particularly well known for its excellent work in drug manufacture today, was so handicapped that the A. M. A. Chemical Laboratory had to show the firm the method of making the correct analysis before it could proceed with a satisfactory synthesis. Notwithstanding the hardships, the creative genius of Americans, irrespective of their calling, was evident; again necessity was the mother of invention. It was the privilege of the A. M. A. Chemical Laboratory at this time to aid the Federal Trade Commission, the National Research Council and the Chemical Foundation by passing on the products to be licensed. The Laboratory's aims were to require that the product should not be so pure as to work undue hardship on the American manufacturer, yet to be sufficiently pure to meet the after-the-war competition of the German synthetics. Improvements were suggested which were gladly accepted. In the case of Cinchophen, I well remember how specimen after specimen came in as the process was being improved, until finally a product of sufficient purity was obtained. It was with satisfaction that one noticed this concern or that obtaining the services of men well grounded in fundamentals of science and with high ideals. And their efforts have been reflected in their products. The German supremacy in drug chemistry is no more. Better yet, the example of the Germans has not been followed. The flood of synthetics seems to be an incident of the past. American pharmaceutical chemists are putting out fewer products, with greater likelihood of permanent merit. The work is more thorough. Today there is no foundation in fact for the claim that American chemists cannot make as good products as those imported from abroad.

During the last ten years—the second decade—the A. M. A. chemists have investigated practically all of the better class of drugs placed on the market. In the large majority of instances the product as submitted was all that could be desired *chemically;* its constitution was well worked out, the purity high and the method of assay satisfactory. In some other instances, suggestions for improvement were made which were put in effect. Of course, there were some products to which the Laboratory's attention was called which were far from being what they were claimed chemically. Fortunately, these were not representative products and generally were promoted as lone specialties of a small concern. The products being offered now show that the "June graduate chemist" of 1905 has not ignored his newer conceptions of chemistry; he has applied them to his task and elaborated noteworthy chemotherapeutic agents. (Incidentally, he has increased the difficulties of the chemists serving organized medicine.) The contributions of anesthetics, antiseptics, arsenicals, medicinal dyes, complex diagnostic agents—all these attest the ingenuity of modern chemistry in the service of medicine.

OPPORTUNITY FOR FURTHER IMPROVEMENTS

The pharmaceutical purveyers, however, are in position to cause some still needed improvements. It is unfair to the better class of firms that there is a group willing to market products of inferior grade, or, worse still, to dispense tablets or preparations that do not contain the declared amount of ingredients, notwithstanding the Food and Drugs Act of 1906. That this is occurring yearly can easily be pointed out by referring to the successful prosecutions instigated by the Bureau of Chemistry.

There is opportunity for improvement in the methods of introducing a drug; to illustrate, in how much better taste was the careful and mature announcement of the chemical work on tryparsamide and insulin than the premature, press-agented story on intarvin. Yet intarvin is of unusual academic chemical interest.

The advertising departments of the pharmaceutical firms, it seems to me, could well afford to cooperate more closely with the scientific workers before copy is sent broadcast. Many of the difficulties that have been dealt with by the Council on Pharmacy and Chemistry and the Chemical Laboratory can be traced to the copy writer. In a recent case at issue, three letters concerning the composition of a product were answered, and answered misleadingly, by the advertising department without once referring the inquiry to the scientific department. The result was a gross deception

innocently perpetrated, yes, but inexcusably perpetrated. It is the duty of the A. M. A. Chemical Laboratory to inform the medical profession concerning the composition of drugs. In line with this, the Laboratory published the findings about the product; the firm, quite chagrined, has seen the error and has ordered that in the future all inquiries and even advertising material of such nature must receive the approval of the scientific department, which should have been done at first.

Then take the proposition of names—trade names, therapeutically suggestive names, chemical names that hide the active ingredient. It has been shown in case of the leading drugs of today that names indicative of composition can be coined and used successfully—mercurochrome, butyn, salvarsan or arsphenamin—and many others, names that are distinctive and with a scientific background; yet there are some firms which jeopardize the introduction of a meritorious substance by endowing it with either a foolish name or a therapeutically suggestive name. Also, one needs but pick up many catalogues and note the therapeutic names for various mixtures, particularly tablets, not at all in keeping with the scientific spirit—Antispasmodic Tablets, Carbuncle Ointment, Sciatica Tablets, Brain Sedative and what not. On the other hand, it is gratifying to note that for many years a few houses have listed their tablet mixtures under the correct scientific name.

A suggestion, which has emanated from the pharmaceutical organizations but which has not been adopted generally, is the simplification of the number of dosage forms. Why should there be from thirteen to fifteen different dosages for tablets of arsenous oxid? Does it reflect credit for a firm to clutter up its catalogues with practically every remedy possible simply to appear complete? And not quite so bad, but which in the end is just as futile, is the useless duplication of drugs, the oustanding example of which today is the host of barbital derivatives. Certainly it is time for the needless products to be discarded.

In this discussion and particularly the suggestions—suggestions made in the spirit of helpful criticism as seen by the A. M. A. chemists—only chemical questions have been involved. Many believe, I have no doubt, that there is still need of modifying therapeutic claims. This is a matter not within the purview of the Chemical Laboratory, a problem that has been dealt with intelligently by the Council on Pharmacy and Chemistry. It may not be amiss to state, however, that a comparison of present day advertising, particularly in medical journals, with that of two decades ago points out more eloquently than words the cooperation the Council has received from the medical profession and progressive pharmaceutical manufacturers. But even so, the matter of therapeutic claims—claims not properly substantiated—still remains the chief task of the Council and of the pharmaceutical house that desires its propaganda to be looked on with favor.

FUTURE CHEMICAL WORK

The manufacturer and the pharmaceutical chemist both may inquire in what direction chemotherapeutics is to be furthered. What should be the future tendency of chemistry when enlisted in the service of pharmaceutical medicine?

The present tendency of modern investigators has been in the main copied from two men—Pasteur and Ehrlich. The wonderful accomplishments of Pasteur published fifty years or so ago have been so far reaching in influence and so highly valuable that his work today stands paramount; it may well be questioned whether any single human life has rendered more beneficent service to mankind. The chemists, however, forsook Pasteur—Pasteur the chemist—and allowed others to form a profession distinct from chemistry, and to carry on the remarkable observations of Pasteur with microorganisms. The bacteriologists claim credit, justly too, for such monuments to human progress as smallpox virus, diphtheria antitoxin and typhoid vaccine. Considered from the chemist's point of view, however, bacteriology has gone about as far as it can. There has been developed a system of fine technic; the life cycle of the organisms as seen under the microscope has been reported with irreproachable accuracy; methods of distinguishing groups, types, strains, have been accurately elaborated. Chemistry, however, has been so busy with its newer conceptions and vast industrial problems that it has not offered the aid to bacteriology and to medicine that it should. One of the problems—it will be largely a pharmaceutical manufacturer's problem in the end—will be to purify the indefinite vaccine, to eliminate it from the shotgun class and to isolate what in our ambiguity we are pleased to call the active principle. That this is necessary, all forward looking scientists will agree, I believe.

Intimately associated with this is the problem of chemotherapy which has been guided by the brilliant contributions of Paul Ehrlich. His theories of drug actions, his themes on avenues of research, have dominated the mind of the present day chemotherapeutic investigator. The quest, despite failures, goes on to find a remedy that will kill the invading organism without seriously injuring the host. But doesn't it often seem that there is much misdirected effort, due to following just this ideal? In the field of chemotherapy can one point to a single remedy that will effectively kill the invading bacteria without unduly injuring the host? Arsphenamin, quinin and mercury, the outstanding examples of chemotherapeutic agents? But their effectiveness is on organisms of a high type. Success has not been obtained in bacterial invasion. Yet newspapers feature stories, physicians renew interest, pharmaceutical chemists blindly hope whenever an announcement of a new antiseptic is made, particularly if the phenol coefficient is numerically high. The laws of mass action, the electronic theory of oxidation and reduction are not adequately considered. Now this is no deprecation whatever of the work of Pasteur and Ehrlich; it simply makes their contributions all the more remarkable. But it is time to realize that, after all, their work was not in proper sequence. Before bacteriologic chemistry can progress, before chemotherapy can be put on a logical basis, fundamental work must be done on the unit of life, the cell. This need has been recognized for some time. To start work that should have been done many years ago, to go back even farther than Pasteur, relatively speaking, is a difficult suggestion to researchers; to take up an unfinished problem requiring tedious, hard work with no promise of sensational discoveries is not particularly an inducement in this automotive age. But the task is before us, it simply must be done. In doing it, physics especially, and physiology must be at our command. Physics, not alone physical chemistry, including all it does must be utilized in the next decade by all forward-looking pharmaceutical houses engaged in scientific work. In addition to the fundamental studies that must be done on the cell, physics and chemistry must cooperate still further. Drug therapeutists cannot be unmindful of physiotherapy, nor can those who supply physicians with new remedies. After all, physiotherapy is simply another means of inducing chemical reactions in the body. It makes no difference whether cod liver oil, with its deficiency factor, or ultraviolet rays are administered to a rachitic child; the effect is the same. It is somewhat more startling when a chemical such as cottonseed oil is subjected to ultraviolet rays accomplishing the identical results. Bottled sunshine is no longer a fancy. What will be the results of this discovery in which the surface barely has been scratched, none can fortell. The matter of ionic medication by means of the electric current has not

received careful scientific attention, yet it holds forth promise of many interesting observations.

Of course, this fundamental work cannot be done in the laboratories of pharmaceutical concerns; it must be done where there is cooperation of all the sciences, where research will not be hampered by commercial considerations. There is opportunity, nevertheless, for the pharmaceutical industry to recognize that the proper use of drugs will be enhanced by an appreciation of physics and physiotherapy, just as physiotherapy needs the cooperation of chemistry and chemotherapy.

RESEARCH

This leads me to the consideration of research. Of late there have been reports current of a tendency to curtail expenditures on the scientific departments. To do so will probably not be of immediate effect; the dividends might even be increased somewhat for a period. But the pharmaceutical house with competent scientific staff, the concern that encourages research, is the only hope of satisfactory drugs being produced in America. Otherwise the foreign domination of our therapeutics will again return. May that day never be.

SMALLPOX IN BOSTON IN 1690

According to the Boston department of health, *Public Occurances*, Sept. 25, 1690, published the following comment: "The smallpox which has been raging in Boston after a manner very extraordinary is now very much abated. It is thought that far more have been sick of it than were visited with it, when it raged so much twelve years ago. Nevertheless it has not been so mortal, the number of them that have dyed in Boston by this last visitation is about three hundred and twenty which is not perhaps half so many as fell by the former. . . . It infected some children of mothers that had themselves undergone the disease many years ago, for some such were now born full of the Distemper. It is not easy to relate the trouble and sorrow that poor Boston has felt by this Epidemical Contagion."

Medicolegal

Full Compensation Allowed for the "Loss" of an Impaired Eye and of a Sightless One

(Wareheim v. Melrose Granite Co. et al. (Minn.), 201 N. W. R. 543. Mosgaard v. Minneapolis St. Ry. Co. (Minn.), 201 N. W. R. 545)

The Supreme Court of Minnesota, in affirming in the Wareheim case an award of full compensation for the loss of an eye, holds that compensation for the loss of the use of an eye, paid under a settlement between the employee, employer and insurer, does not debar the employee from recovering the full schedule compensation specified in the workmen's compensation act of that state for the removal of the same eye, injured in a subsequent employment under a different employer, it appearing that the employee recovered from the first injury so that in certain positions he could read print and note approaching objects. It may seem inequitable to the employer, the court says, that full compensation should be given for the loss of an eye which another employer has also paid for, but that is due to the imperfection of the statute.

The industrial commission and the court are not given authority to award a compensation that will fit justice in each individual case. Especially is this true when it comes to the schedule given for the loss of a member of the body. It is the same for the youth as for the one tottering on the brink of the grave. It is the same for a member of perfect vigor and function as for one impaired and ill functioning. This court therefore thinks that the schedule should be permitted to speak where it specifically awards a certain sum for the loss of a member. Here was an actual removal of a member of the body for which the schedule fixed a specific compensation. To be sure, such member was impaired, but functioning to some extent. That it resulted in double compensation, in that a previous compensation had been paid by another employer, was the good fortune of the employee, for the statute has omitted to make provision for such cases. This is also apparent from the fact that, had the first injury resulted in the loss of a half or a third of the vision of the eye in question, and compensation been paid accordingly, the law does not authorize the industrial commission to take the compensation therefor into consideration in the award for the subsequent injury resulting in the removal of the eye. The difference between such a case and the one at bar is only one in degree of what may seem unfair compensation because of defects in the law itself.

The Supreme Court of Minnesota holds, furthermore, in the Mosgaard case that when, in the course of his employment, an accidental injury to a workman's eye necessitates its removal, the workman, totally blind in that eye since childhood, becomes entitled to compensation as provided in the workmen's compensation act, which allows, "for the loss of an eye, sixty-six and two-thirds per centum of the daily wage at the time of injury during one hundred weeks." That is to say, for the removal of a sightless eye, necessitated by an industrial accident, a workman is entitled to receive compensation for the loss of an eye as provided by the workmen's compensation act of Minnesota. In *State ex rel. Garwin v. District Court*, 129 Minn. 156, the workman, the court says, had but one good eye. He lost it and became totally blind. His earning capacity was virtually destroyed. But, under the provisions of the statute, he received no greater compensation than this workman who lost an eyeball, useless for any purpose except to fill the socket now filled with a glass eye, whose other eye is as good as it was before the accident, and whose earning capacity has not been impaired in the slightest degree. The inequalities are glaring, but, if they are to be removed, it must be by legislation.

Belief in Coming Death Needed for Dying Declarations

(State v. Stewart (N. M.), 231 Pac. R. 692)

The Supreme Court of New Mexico says that before a dying declaration is admissible in evidence it must be shown that it was made under a sense of impending death, and without any hope of recovery on the part of the declarant. It should be admitted with scrupulous care, since it was in the absence of the defendant and not under the sanction of an oath, the declarant was not subject to cross-examination and was in no peril of prosecution for perjury, and there was grave danger of omissions or unintentional misrepresentations both by the declarant and by the person reducing the statement to writing. But while it is indispensable, as a predicate to its admission in evidence, that it must be shown to the court that the declarant was possessed with a consciousness of impending death, the fact that the declaration was made in such a state of mind may be proved, not only by the declaration of the maker, but by other relevant evidence, and may be inferred, as well, from the surrounding circumstances, if these establish clearly that it was made under such a belief. Any language indicating a belief on the part of the declarant that imminent death is inevitable, or any conduct evidencing such a state of mind, is sufficient to authorize the admission of such declaration. So, also, is a statement of the attending physician or others to such effect made to the declarant, apparently acquiesced in by him.

In the instant case, the only evidence introduced relative to the dying declaration was that of the attending physician, who also appeared as a witness to the declaration introduced in evidence, which was made shortly after he arrived on his first visit at 9 a. m. on the day that the declarant was shot. The physician testified as to the condition in which he found the man, and that in a general way he explained the situation to him, telling him that he was not then in a condition to be moved for an operation, but that he would have to be built up and restored from the shock before an operation could be performed; that the patient made no reply, but the witness

assumed that he understood the situation. When the physician returned at about noon, he had no hope for the man's recovery. The court does not think the evidence sufficient to establish prima facie that the declaration was made under the sense of impending death, wherefore it is held that it was error to admit the declaration in evidence.

There are decisions to the effect that, although the attending physician or surgeon may believe the wounded man to be progressing favorably, and even when such belief is expressed to the declarant, the dying declarations may be admitted, when it appears from other evidence that, in spite of such belief or of such expressions on the part of the physician, the declarant believed that death would necessarily result from the injury. But in each of the cases referred to there was other and independent evidence that the declarant had indicated his settled belief of his approaching death, in spite of the statements or opinion of the physician that there was hope that he might recover. The realization of approaching death must have existed at the time the statement was made, unless the statement was afterward reiterated with such consciousness on the part of the declarant. The opinion of the physician formed at a visit subsequent to the one at which the declaration was made would furnish no basis for the admission of the declaration in evidence.

Award for Benefit of Physicians and Hospital Sustained—Agent's Authority

(Texas Employers' Ins. Ass'n v. Drummond et al. (Texas), 267 S. W. R. 335)

The Court of Civil Appeals of Texas, in affirming a judgment that affirmed an award under the workmen's compensation act of the industrial accident board, says that the award was for $231.30 for the personal compensation of the injured employee and for $908.75 for the use and benefit of physicians, nurses, drugs and hospital charges. It was contended that the recovery for the physicians' charges of two physicians was improperly allowed because of failure to plead and prove that they had complied with Article 5736 of the Revised Statutes of Texas, which makes it unlawful for one to practice medicine without registering with the district clerk his authority for so practicing. That contention was overruled on the ground that this was a defensive matter, not pleaded as a defense, but first urged in a motion for a new trial. This court therefore holds that it came too late, for had it been so pleaded, no doubt the evidence would have been that these physicians had so qualified.

Another contention was to the effect that the judgment for physicians' bills, for operation, hospital charges and medicines, etc., was erroneous because, it was insisted, the evidence showed that there was no authority from the insurance association for furnishing them; because they were advanced after the expiration of two weeks from the date of the alleged injury, and because there was no compliance with Section 7, Part 1, of the workmen's compensation act, now Articles 5246-5249 of the revised statutes. With regard to the last point, it did conclusively appear that the provisions of these articles with respect to a physician and surgeon certifying to the necessity for surgical operation and additional hospital services after the expiration of one week were not complied with, but the case was tried by the defendants on the theory that the local agent of the insurance association had notice of all things that were being done, and in fact authorized all steps so taken by the parties seeking a recovery, and for that reason the association could not defeat a recovery.

The association urged that its local agent was not shown to have been authorized to bind the company in this way and thereby relieve the defendants of full compliance with the provisions of the statutes. However, there were many circumstances in evidence which tended to prove that such agent was the duly authorized agent of the association, such as statements in evidence made to one of the physicians at the time he took over the case and during the entire time of the treatment, such as the physician's written reports of the progress of the case in writing to the agent which were requested by the latter, etc. Besides, the agent testified, among other things, that he had been acting as district manager for the association and during that time had been investigating alleged injuries received by employees of the subscribers; had been dealing with physicians in seeing that medical attention was given to the patients—the same sort of thing that he did in this case, and that he kept fully informed as to the steps taken with regard to this patient. This was sufficient evidence to constitute prima facie proof that this alleged agent was the agent of the association and authorized to bind it and to fix liability therefor for all the acts of the physicians, nurses, hospital and medicines, as well as for the operation which, under the testimony and findings of the jury, were necessary, and charges reasonable. If the agent did not in fact have authority to do these things, which his acts and declarations showed that he had, it would have been an easy matter for the association, through its managing officers, to show the extent of his authority. By these things it waived a technical compliance with the provisions of the statutes quoted.

It was urged that it was error to admit the testimony of the physician and of another witness that the agent told them that it would be all right for the physician to take over this injured employee's case and go ahead with it, on the proposition that the declarations of a person purporting to bind a principal are not competent evidence against the principal, unless authority for their utterance is shown. But that this alleged agent of the association was its agent was not questioned. The only thing questioned was the extent of his authority. That the facts here sufficiently established that he was acting within the apparent scope of his authority could not be doubted.

Sheriff Without Power to Appoint Physician for Jail

(Clayton v. Board of Chosen Freeholders (N. J.), 127 Atl. R. 37)

The Supreme Court of New Jersey says that a rule to show cause was allowed in this case, directed to the board of freeholders of Monmouth County to show cause why a peremptory or alternative writ of mandamus should not issue commanding the said board to pay a voucher of relator Clayton for $250, being three months' salary as the physician of the common jail of Monmouth County. The relator was appointed such physician by the sheriff of the county. The question involved was, Who has the right to make such appointment? It was conceded that there was no statute giving the sheriff expressly such power, and this court has been unable to find any. The sheriff has no such power, unless it is conferred by authority of the legislature. This court thinks that he has no such power. A writ of mandamus will therefore be denied, with costs.

Depositions of Physician Properly Received

(John v. Reick-McJunkin Dairy Co. (Pa.), 127 Atl. R. 143)

The Supreme Court of Pennsylvania says that, in this action to recover damages for personal injuries, the depositions, taken in another state, of a physician who attended the plaintiff were offered in evidence on behalf of the plaintiff and were objected to by the defendant. The evidence objected to included the testimony of the physician as to facts given him by the patient, constituting a history of the latter's condition, on which the physician based his opinion as to the plaintiff's physical ailment and prescribed the treatment to be given. The trial court held that the evidence was properly received. In this there was no error. This evidence was properly received.

Society Proceedings

COMING MEETINGS

National Medical Association, Chicago, Aug. 25-28. Dr. Clyde Donnell, 121 Parrish Street, Durham, N. C., Secretary.

Oregon State Medical Society, Medford, Sept. 2-4. Dr. C. L. Booth, 1021 Selling Bldg., Portland, Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to THE JOURNAL for a period of three days. No foreign journals are available prior to 1920, nor domestic prior to 1923. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested).

Titles marked with an asterisk (*) are abstracted below.

American Journal of Physiology, Baltimore

72: 387-693 (May 1) 1925

Voluntary Relaxation of Esophagus. E. Jacobson, Chicago.—p. 387.
*Blood Regeneration in Severe Anemia. I. Standard Basal Ration Bread and Experimental Methods. G. H. Whipple and F. S. Robscheit-Robbins, Rochester, N. Y.—p. 395.
*Id. IV. Green Vegetable Feeding. F. S. Robescheit-Robbins and G. H. Whipple, Rochester, N. Y.—p. 431.
Vital Function Studies. I. Analysis of Dreyer Standards of Vital Capacity. A. W. Rowe, Boston.—p. 436.
*Pulmonary Circulation by Transillumination Method. H. L. Hall, Cleveland.—p. 446.
Effect of Calcium Carbonate Supplement in Diet of Hens, on Weight, Protein Content and Calcium Content of White and Yolk of Eggs. G. D. Buckner, J. H. Martin and A. M. Peter, Lexington, Ky.—p. 458.
Seasonal Variation of Thyroid Size in Pigeons. O. Riddle and W. S. Fisher, Cold Spring Harbor, N. Y.—p. 464.
*Augmentation of Vascular Responses of Cat to Successive Vasomotor Stimuli of Equal Values. B. R. Lutz and L. C. Wyman, Boston.—p. 488.
*Effect of Compulsory Work During Gestation on Mother and Young. J. R. Slonaker and D. L. Robertson, Stanford University, Calif.—p. 502.
*Study of Tobacco Smoking. W. L. Mendenhall, Boston.—p. 549.
Demonstration of Bronchial Constriction and Compression from Physical and Other Causes. P. J. Hanzlik, San Francisco.—p. 558.
Lesions in Cerebral Cortex and Extension Rigidity in Cats. J. M. D. Olmsted and H. P. Logan, Toronto.—p. 570.
*Association of Copper with Substances Containing Fat-Soluble A Vitamin. J. S. McHargue, Lexington, Ky.—p. 583
Effects of Early and Late Breeding on Mother and Sex Ration in Albino Rat. C. L. Cooley and J. R. Slonaker, Stanford University, Calif.—p. 595.
Action of Insulin. G. S. Eadie, J. J. R. MacLeod and E. C. Noble, Toronto.—p. 614.
*Physiology of Liver. X. Uric Acid Following Total Removal of Liver. J. L. Bollman, F. C. Mann and T. B. Magath, Rochester, Minn.—p. 629.
Mineral Metabolism Studies with Dairy Cattle. H. G. Miller, W. W. Yates, R. C. Jones and P. M. Brandt, Corvallis, Ore.—p. 647.
Asynchronism of Right and Left Ventricular Contractions and Independent Variations in Their Duration. L. N. Katz, Cleveland.—p. 655.

Blood Regeneration in Severe Anemia.—The anemia experiments made by Whipple, Robscheit-Robbins, and many others, show that iron treatment is without effect on subsequent hemoglobin and red cell regeneration. The same is probably true for human beings. Long continued severe anemia due to hemorrhage may be associated with iron depletion and these experiments in dogs show a favorable reaction to iron treatment (Blaud's pills). The same is probably true for human beings. From these two simple types of experimental anemia no data are given which enable one to predict the reaction to drug treatment to be expected in the complex human anemias, so often associated with chronic infection and intoxication. Variations in the color and hemoglobin indices are discussed. The low color index in these experiments is referable to small red cells rather than pale red cells or the hemoglobin content is almost normal in these red cells which are distinctly subnormal in size. Germanium dioxid is a drug which under experimental conditions is almost inert. Arsenic in the form of cacodylate or Fowler's solution may give a slight reaction or be quite inert as influencing hemoglobin regeneration in these experiments. Under a variety of experimental conditions in anemia due to hemorrhage the reactions to iron may vary, yet the favorable reaction to liver feeding is a sustained and uniform maximum.

Effect of Green Vegetable Feeding on Anemia.—Short anemia experiments made by Robscheit-Robbins and Whipple indicated that fresh or cannel milk or dried spinach was rather a favorable diet factor for the regeneration of hemoglobin and red cells. Similar experiments indicated that many other vegetables were inert under similar conditions—for example carrots, Brussels sprouts, parsley, celery and beet tops. Severe anemia experiments show clearly that under such conditions the green vegetables are only moderately favorable food factors for the regeneration of hemoglobin and red cells. Spinach and beet greens appear to be very slightly more potent than lettuce and asparagus but different dogs react in various degrees to these four green vegetables. It may be safest to rate all four alike and state that the presence of large amounts of these vegetables in the diet modifies but slightly the hemoglobin and red cell construction. Chlorophyl may be very like hemoglobin in its chemical structure but the normal dog cannot utilize much if any of the chlorophyl nucleus for hemoglobin construction even under maximal stress.

Pulmonary Circulation by Transillumination Method.—A transillumination method for studying the blood-flow in the pulmonary vessels of the cat and rabbit is described by Hall. The character of the circulation in the larger and smaller arterioles, capillaries and venules is described. Evidence is presented which indicates that the small vessels of the pulmonary system are affected through the sympathetic nerve fibers but not through the parasympathetic fibers of the vagus. Stimulation of the latter, however, produces changes in the air sacs that can be attributed to bronchomotor nerves.

Assay of Epinephrin.—The unreliability of the blood pressure method for the physiologic assay of epinephrin is pointed out by Lutz and Wyman.

Effect of Compulsory Work During Gestation on Mother and Young.—The general conclusions drawn by Slonaker and Robertson are that forced exercise given rats during gestation sufficient to cause a marked degree of fatigue tends to cause resorption of young, abortion, pseudopregnancy or death of the adults, a reduction of the number of young born and a lack of normal lactation.

Effect of Tobacco Smoking.—Mendenhall feels that the results of his investigation seem to warrant the following conclusions: (1) The immediate effect of smoking on a sensory mechanism is conditioned on the state of the sensory mechanism at the time when the subject indulges in smoking. (2) The immediate effect of smoking is stimulation when the sensory mechanism is depressed, or depression when the sensory mechanism is in a state of hyperexcitability. The depressing effect of smoking is much more marked on the threshold than is the stimulating effect. (4) The sensory mechanism of smokers and nonsmokers, both male and female, reacts alike to the influence of smoking. (5) Non-nicotine containing smoke does not produce the same results as nicotine containing smoke. The results are suggestive of nicotine action because of the difference of effect produced by nicotine smoke and non-nicotine smoke; and because the known action of nicotine on nervous structure is chiefly that of depression.

Function of Copper in Metabolism.—The wide distribution of small amounts of copper in plant animal tissues and its greatest concentration occurring in vital organs leads McHargue to infer important biologic functions for this element in the normal metabolism of plants and animals.

Liver and Uric Acid Destruction.—The work done by Bollman et al. shows that the destruction of uric acid in the normal dog depends on the presence of the liver, as this process ceases as soon as the liver is removed.

American Journal of Public Health, Albany, N.Y.

15: 387-486 (May) 1925

Eighty-Six Cities Studied by Objective Standards. G. T. Palmer, P. S. Platt and W. F. Walker.—p. 387.
Rendering Account in Public Health. W. H. Frost, Baltimore.—p. 394.
Necessity for Completing Registration Area by 1930. W. H. Davis, Washington, D. C.—p. 399.
Malden Studies in Health Education. C. E. Turner, Boston.—p. 405.
Administrative Control of Contagious Diseases. C. V. Craster, Newark, N. J.—p. 415.
Industrial Hygiene by Employers' Organizations. F. L. Rector, New York.—p. 423.
Effect on Infants of High Prepasteurization Counts. J. H. Schrader and J. C. Swenarton, Baltimore.—p. 427.
Standardization of Typhoid-Paratyphoid Vaccine. J. W. Smith, Jr.—p. 433.

American Journal of Roentgenology and Radium Therapy, New York

13: 411-514 (May) 1925

Surgical Treatment of Cancer of Breast. E. S. Judd, Rochester, Minn. —p. 411.
*Value of Postoperative Irradiation in Mammary Carcinoma. W. A. Evans and T. Leucutia, Detroit.—p. 415.
*Use of Roentgen Ray in Pertussis. R. D. Leonard.—p. 420.
Roentgen-Ray Treatment of Diseased Tonsils and Adenoids. P. B. Maccready, New Haven, Conn.—p. 424.
Roentgen-Ray Diagnosis of Nonopaque Foreign Bodies in Trachea. W. F. Manges, Philadelphia.—p. 429.
Chronic Appendicitis. A. G. Schnack, Honolulu, T. H.—p. 438.
Case of Multiple Myeloma. W. W. Belden, New York.—p. 442.
Normal Variations and Pathologic Conditions of Diaphragm. L. T. le Wald, New York.—p. 447.
Epilation in Mice as Biologic Standard for Determining Roentgen Ray Dosage. H. H. Hazen and L. C. Milstead, Washington, D. C.—p. 451.
Theoretical and Experimental Study of Small Ionization Chamber. II. H. Fricke and O. Glasser, Cleveland.—p. 453.
Standardization of Roentgen-Ray Dose by Means of Small Ionization Chamber. H. Fricke and O. Glasser, Cleveland.—p. 462.

Postoperative Roentgenotherapy in Mammary Cancer.—Evans and Leucutia are convinced that there is a beneficial action of roentgen rays in the postoperative stage of mammary carcinoma. A local tissue reaction is produced by the irradiation which brings about immunization against carcinoma. It is essential that the dose should be within the limit of the tolerance of the normal tissues. A destruction of the protective normal tissue around the lesion will produce aggravation of the disease.

Roentgenotherapy of Pertussis.—An experience with more than 400 cases has shown Leonard that roentgen-ray irradiation produces a diminution in the number and severity of the paraxysms in more than 75 per cent. of the cases, controlling particularly well the vomiting spells. The roentgenographic findings would seem to indicate that the beneficial results may bear some relation to the effect which roentgen rays have on the bronchial lymph glands.

American Journal of Tropical Medicine, Baltimore

5: 211-268 (May) 1925

Public Health Progress in Porto Rico. R. B. Hill, New York.—p. 211.
Leprosy Problem in Brazil. H. C. de Souza-Araujo.—p. 219.
*Tetrachlorethylene; New Anthelmintic. M. C. Hall and J. E. Shillinger, Washington, D. C.—p. 229.
*Intestinal Flagellates in Tropical America. R. W. Hegner, Baltimore.—p. 239.
Complement-Fixation Tests on Serums of Cattle Harboring Trypanosoma Americanum. H. W. Schoening, Washington, D. C.—p. 247.
Taxonomy of Chiggers, New Genus, Six New Species and New Variety. H. E. Ewing, Washington, D. C.—p. 251.

Tetrachlorethylene.—Hall and Shillinger assert that tetrachlorethylene is apparently as effective as carbon tetrachlorid and may be slightly more effective. The indicated dose for man would not be over 3 c.c. and might be as little as 2 c.c. for the removal of hookworms. It would be about as effective in removing ascarids from dogs as is carbon tetrachlorid, and would probably show the same inferiority to chenopodium for the removal of ascarids from man. Presumably the same combinations with chenopodium would be effective in mixed infections with hookworms and ascarids in man. The safety of the drug would probably be very close to that of carbon tetrachlorid, and the drug would probably produce the same lesions, usually a hepatic necrosis, healing in the course of one or two weeks, and would have the same contraindications.

Intestinal Flagellates in Tropical America.—Data are presented by Hegner resulting from examinations of stools from natives at Tela, Honduras, Port Limon, Costa Rica and Santa Marta, Colombia. The incidence of infection with *Trichomona hominis* was 20.6 per cent., with *Chilomastix mesnili*, 7.7 per cent., and with *Giardia lamblia*, 2.1 per cent.

Annals of Surgery, Philadelphia

81: 893-1051 (May) 1925

*Surgical Aspects of Pathology of Gliomas of Brain. E. Sachs, St. Louis. —p. 893.
*Management of Intracranial Injuries with or Without Fracture. J. F. Connors, New York.—p. 907.
*Splenic Blood Disorders. E. M. Hanrahan, Baltimore.—p. 906.
Drainage of Thoracic Duct in Experimental Peritonitis. H. H. Cox and L. B. Bell, Chicago.—p. 911.
Surgical Emergencies of Abdomen. E. L. Eliason, Philadelphia.—p. 917.
*Viability of Intestine in Intestinal Obstruction. H. B. Eisberg, New York.—p. 926.
*Rôle of Pyloro-Duodenal Nerve Supply in Surgery of Duodenal Ulcer. B. Schiassi, Modena, Italy.—p. 939.
Benign Tumors of Stomach. C. Higgins, Cleveland.—p. 949.
Gallstones and Diseases of Gallbladder. C. H. Mayo, Rochester, Minn. —p. 955.
Surgery of Gallbladder and Ducts. F. S. Mathews, New York.—p. 961.
Cancer of Rectum and Rectosigmoid. J. I. Russell, New York.—p. 972.
*Thrombo-Angiitis Obliterans. F. L. Meleney and G. G. Miller, Peking, China.—p. 976.
*Elimination of Morphine and Other Accessory Drugs in Operations Under Local Anesthesia. J. G. Anderson, New York.—p. 994.
Polyposis of Appendix Vermiformis with Intussusception of Appendix. H. W. Horn, Wichita, Kan.—p. 1002.

Pathology of Gliomas of Brain.—Sachs believes that all gliomas that are cystic in character or, if solid, have a sharp line of demarcation, are composed of glia nuclei, are favorable cases for radical removal, and, especially the cystic variety, offer a very good prognosis. Those that are deep seated in the cerebellum are less favorable, but are so soft that, with suitable suction apparatus, they can probably be quite completely removed by that method, but they show a great tendency to recur. Deep seated tumors in the cerebrum are infiltrating tumors, and are unfavorable cases for treatment. These are the rapidly growing tumors and have a bad prognosis. There are some gliomas that seem to respond to deep roentgen-ray therapy.

Treatment of Intracranial Injuries.—Among the 497 cases of intracranial injuries analyzed by Conners, death occurred in forty-eight hours in 181 and later than that in seventy-seven. There were 232 deaths without operation and twenty-six deaths following operation; 198 recoveries without operation and forty-one recoveries following operation.

Splenic Blood Disorders.—A surgical classification based on end results is attempted by Hanrahan. Group 1: Splenectomy is definitely indicated in purpura hemorrhagica, the slow chronic forms of familial hemolytic jaundice, and the early forms of splenic anemia (including the Banti syndrome). Group 2: Splenectomy should be considered, and the decision should be based on the results seen in similar conditions, in the more progressive forms of hemolytic jaundice, particularly the acquired forms, splenic anemia, and in rare cases of pernicious anemia. Group 3: Splenectomy is contraindicated in lymphoid and, unless previously irradiated, in myeloid leukemia, polycythemia, and the rapidly progressive fulminant forms of hemolytic jaundice, splenic anemia and pernicious anemia.

Viability of Obstructed Intestine.—From the evidence obtained by him, Eisberg asserts that leaving intestine of questionable viability in the peritoneal cavity with the idea that it is just as safe to resect within twenty-four hours is to be condemned. A fatal toxemia can result within this time if the segment does not become viable.

Pyloroduodenal Nerve Supply and Duodenal Ulcer.—Schiassi contends that the neurotic constitution of these patients is of the greatest importance as a predisposing factor in affections in the gastroduodenal regions. In the case of a duodenal lesion already completed, while every means should be tried for a possible cure of the ulcer, provision should be instituted to prevent its probable return. For the first indication for the cure of the ulcer besides rest, atropin and opium, gastro-enterostomy is recommended. For the second indication, the surgeon should sever the nerve connections of the stomach so that it will be free from the effects of nervous influences which may come through the sympathetic trunks. Schiassi presents precise operative suggestions as to the modus operandi of freeing the affected portion of the digestive tract from the influence of sympathetic innervation.

Thrombo-Angiitis Obliterans.—Meleney and Miller present the results of their anatomic, pathologic and clinical study of twenty-five cases of thrombo-angiitis obliterans occurring among Chinese. The process appears to be an inflammatory one, attacking the large and small arteries and veins in an irregular manner and causing thrombosis and obliteration. It is not necessarily progressive either from below upward or from above downward. The nutrient arteries of the nerves

are frequently the site of this process. This may in some manner explain the severe pain which is constantly associated with this disease. An extensive collateral circulation develops as a result of the blocking of blood vessels. In some cases this collateral development can keep pace with the obliterating process and maintain the circulation. In other cases it cannot keep pace with it and then more or less extensive gangrene develops. In those cases in which there is general and local evidence that the collateral circulation can keep pace with or outrun the obliterating process, and the gangrenous area is small, the treatment should be conservative operation. In the other cases the treatment should be radical operation. Only in borderline cases can conservative general treatment be expected to be of much avail.

Preoperative Administration of Morphin Not Beneficial.—Observations made by Anderson on several hundred cases in which operation was performed under local anesthesia, with and without the preoperative use of morphin or epinephrin, indicate that the preoperative administration of these drugs is not as beneficial to the patient as has been generally believed. This is particularly true in urologic cases. This investigation leads to the conclusion that in the majority of cases, local anesthesia, properly administered, affords the patient the desired relief from pain, and the cooperation of the anesthetist and the operating team will diminish mental anxiety. Therefore, the patient should not, save in exceptional cases, be subjected to the possible untoward effects of accessory drugs.

Arkansas Medical Society Journal, Little Rock

21: 257-272 (May) 1925

Treatment of Nasal (Sphenopalatine Meckel's) Ganglion in Hay-Fever. R. J. Payne, St. Louis.—p. 257.
Cults. L. C. McVay, Marion.—p. 260.

Boston Medical and Surgical Journal

192: 987-1034 (May 21) 1925

Pathology of Exophthalmic Goiter. R. B. Cattell, Boston.—p. 989.
New Growths Involving Terminal Bile and Pancreatic Ducts. E. Springer.—p. 997.
Use of Glucose in Treatment of Disease in Children. F. B. Talbot, Boston.—p. 1000.
Congenital Tumors of Maxilla: Case. G. D. Cutler and C. Rock, Boston.—p. 1001.
Teaching of Obstetrics. E. P. Davis, Philadelphia.—p. 1003.
Is the Profession Interested in Preventive Medicine? E. R. Kelley.—p. 1007.
Smallpox in Canada from 1913-1923. S. B. Woodward, Worcester.—p. 1008.

192: 1035-1084 (May 28) 1925

*Physiologic Effects of Radiation; Electromagnetic Spectrum. W. T. Bovie, Cambridge, Mass.—p. 1035.
*Uteroplacental Apoplexy. Two Cases. L. E. Phaneuf, Boston.—p. 1037.
United States Veterans' Bureau and Disabled Esservice Man. I. Green, Boston.—p. 1046.
Gallstone Ileus. G. A. Moore, Brockton.—p. 1051.
Treatment of Scoliosis. C. E. Ayers, Worcester.—p. 1055.
Developmental Diagnosis in Infancy. A. Gesell, New York.—p. 1058.
Children's Personality and Behavior. E. S. Abbot, Boston.—p. 1060.

Influence of Light on Growth.—A very illuminating experiment dealing with the influence of light on the growth of chickens was performed at the State University of Maine. A brief résumé is given by Bovie. Two hundred and fifty chicks were used. They were divided into three groups. The chicks of the first group were allowed to run outside the greenhouse in the open sunlight, although they came in to sleep and eat. The chickens in the second group were exposed to the rays of a quartz mercury vapor lamp for twenty minutes each day. The chickens of the third group were shielded from the light of this lamp so that they received only the sunlight which passed through the glass roof of the greenhouse. There is a very restricted range of wave lengths in the sunlight ultraviolet that is not transmitted by glass. Since in these experiments the chickens grew and developed normally in full sunlight and since they did not grow and develop in a normal manner in light transmitted by glass it is evident that chickens, at least, are vitally dependent on this narrow band of the ultraviolet.

Uteroplacental Apoplexy.—Two cases of uteroplacental apoplexy following premature detachment of the normally implanted placenta are reported by Phaneuf. In one the placental separation was almost complete, while in the other the placenta was free in the uterine cavity. The apoplectic process was much more severe in extent in the second case than in the first. Uterine torsion was not a prominent factor in either case, and trauma could hardly be considered as a cause; it was absent in the first case, and had occurred about three months before the onset of the symptoms in the second. In both instances the lower uterine segment was free from hemorrhagic infiltration. Delivery was accomplished by the abdominal route. Both fetuses were stillborn. Both puerperas were discharged from the hospital in good physical condition, and have remained well since.

Georgia Medical Association Journal, Atlanta

14: 177-220 (May) 1925

Features of Mental Disease Problem. R. C. Swint, Milledgeville.—p. 177.
Internal Secretion in Rheumatism. J. B. Camp, Carrollton.—p. 183.
Treatment of Diabetes Mellitus. H. I. Reynolds, Athens.—p. 187.
Precancerous Dermatoses. J. W. Jones, Atlanta.—p. 189.
Acute Intestinal Obstruction. P. W. Best, Atlanta.—p. 192.
Acute Appendicitis. W. A. Selman, Atlanta.—p. 195.
Rectal Feeding. G. M. Niles, Atlanta.—p. 197.
Eye Symptoms of Constitutional Disturbances. J. R. Simpson, Gainesville.—p. 199.
Diseases of Prostate. J. T. Stukes, Americus.—p. 202.

Indiana State Medical Association Journal, Ft. Wayne

18: 167-208 (May) 1925

Plastic Surgery About Face, Head and Neck. J. C. Beck, Chicago.—p. 167.

Johns Hopkins Hospital Bulletin, Baltimore

36: 325-392 (May) 1925

*Fate of an Intravenously Injected Dye (Brilliant Vital Red); Use in Blood Volume Determination. H. P. Smith, Baltimore.—p. 325.
*Hemophilia; Three Cases. E. C. Davidson and I. McQuarrie, Detroit.—p. 343.
*Excretion of Guanidine Bases in Two Cases of Arterial Hypertension with Reduction in Blood Pressure. R. H. Major, Kansas City, Kan.—p. 357.
Origin of Phagocytic Cells of Lung of Frog. M. R. Lewis, Washington, D. C.—p. 361.
Alleged Power of Bacteria to Form Bile Pigment from Hemoglobin. A. R. Rich and J. H. Bumstead, Baltimore.—p. 376.

Fate of Intravenously Injected Dye.—A study was made by Smith of the behavior of brilliant vital red when introduced into the blood stream. He found that this dye is slowly eliminated by the liver but not by the kidneys. Before being eliminated from the body much of the dye is taken up and stored by phagocytes. The phagocytes do not completely remove the dye from the plasma because the phagocytic reaction is a matter of equilibrium between phagocytes and the dye colored plasma. It is shown that dye passes in considerable amounts into the lymph and tissue fluids also. This phenomenon doubtless explains, in part, the fact that the dye method gives figures which are larger than the carbon monoxid or direct method of Welcker. Other reasons for this difference are discussed.

Familial Hemophilia.—A typical, hemophilic family is reported on by Davidson and McQuarrie in which fourteen proved cases of hemophilia have occurred in eight generations. The hereditary transmission occurred in this family according to the law of Nasse. No occurrence of the disease in females and no transmission through the males of the family has been observed. One typical case of sporadic hemophilia is described. The clinical picture and the blood abnormalities are identical in the sporadic type and in the hereditary type of the disease. The blood coagulation time and the prothrombin time in the cases of hemophilia were from twice to twenty-five times as great as the normal. The finding by Minot and Lee of a qualitative platelet deficiency without a diminution in the number of platelets has been confirmed. The bleeding time, the capillary resistance, the nature of the blood clot when finally formed, the amount of blood calcium and the number of blood platelets were at all times found to be normal in the cases of hemophilia studied.

Relationship Between Guanidin Bases and Hypertension.—The two cases reported by Major suggest a relationship between the guanidin bases and hypertension, since the marked increase in excretion of these bases was followed by a fall in blood pressure.

Journal of General Physiology, Baltimore

7: 581-669 (May 20) 1925

Pulsation of Contractile Vacuole of Paramecium as Affected by Temperature. W. H. Cole, Worcester, Mass.—p. 581.

Mechanism of Change in Resistance of Erythrocytes to Hypotonic Salt Solutions. S. C. Brooks, Washington, D. C.—p. 587.

Hydrogen Ion Concentrations in Blood of Insects. R. W. Glaser, Princeton, N. J.—p. 599.

Test for Diffusible Ions. II. Ionic Nature of Pepsin. J. H. Northrop, New York.—p. 603.

New Methods in Physiology and Pathology of Plants. C. B. Lipman and A. Gordon, Berkeley, Calif.—p. 615.

Interfacial Tensiometer for Universal Use. P. Lecomte du Nuoy, New York.—p. 625.

Cell Sap of Valonias and Problem of Flotation. W. J. V. Osterhout and M. J. Dorcas, Cambridge, Mass.—p. 633.

Production of Carbon Dioxid by Nerve. G. H. Parker, Cambridge, Mass.—p. 641.

Journal of Immunology, Baltimore

10: 567-642 (May) 1925

*Hepatic Reactions in Anaphylaxis. IX. Effects of Dehepatization on Reactions of Certain Smooth Muscle Structures in Canine Anaphylaxis. W. H. Manwaring, V. M. Hosepian, J. R. Enright and D. F. Porter, Stanford University, Calif.—p. 567.

*Id. X. Hepatic Anaphylatoxin. W. H. Manwaring, V. M. Hosepian, F. I. O'Neill and H. B. Moy, Stanford University, Calif.—p. 575.

*Id. XI. Glycogen Content of Anaphylactic Liver. F. I. O'Neill, H. B. Moy and W. H. Manwaring, Stanford University, Calif.—p. 583.

Action of Pancreatic Extracts on Complement. A. Wormall, H. Robinson and J. Gordon, Leeds, Eng.—p. 587.

*Incidence of Two Types of Group II Human Red Blood Cells. B. S. Kline, E. E. Ecker and A. M. Young, Cleveland.—p. 595.

Antigenic Properties of Extracts of Horse Dander. I. Active Sensitization of Guinea-Pigs to Horse Dander Extract. W. T. Longcope, D. P. O'Brien and W. A. Perlweig, Baltimore.—p. 599.

Agglutinable Antigens of Bacillus Influenzae. I. Methods of Preparing and Preserving Antigens of B. Influenzae, and Their Effects on Specific Agglutination. M. J. Evans and J. C. Small, Philadelphia.—p. 613.

*Bacteriophage with Respect to Complement Fixation Tests. E. S. Sanderson, Princeton, N. J.—p. 625.

*Specific Substances in Alcohol Extract of Bacillus Tuberculosis. L. Dienes and E. W. Schoenheit, Asheville, N. C.—p. 631.

Hepatic Reactions in Anaphylaxis.—Manwaring et al. summarize their observations as follows: During the first two minutes of typical anaphylactic shock in intact dogs, the uterus, urinary bladder and intestines are thrown into sharp contraction. These typical anaphylactic contractions do not take place on intravenous injection of specific foreign protein into dehepatized anaphylactic dogs. Therefore, it is believed that the smooth muscle contractions here considered are due to chemical products (hepatic anaphylatoxins), explosively formed or liberated by the anaphylactic liver, products having a histamin-like effect on smooth muscle structures.

Hepatic Anaphylatoxin.—The anaphylactic fall in arterial blood pressure in normal dogs after anaphylactic liver transplantation Manwaring et al. found to be less prolonged than the blood pressure fall in control intact anaphylactic dogs. Recovery is usually complete within thirty minutes. In the anaphylactic controls, recovery usually does not take place within ninety minutes. It seems probable, therefore, that the hepatic anaphylatoxins are not the only factors operative in acute canine anaphylactic shock.

Glycogen Content of Anaphylactic Livers.—A chemical study made by O'Neill et al. of shock livers showed that glycogen disappears almost quantitatively from the canine liver during the first fifteen minutes of anaphylactic shock. This observation is in line with the initial hyperglycemia in guinea-pig anaphylaxis recently reported by Zunz and La Barre.

An Agglutinable Substance in Blood Cells.—An agglutinable substance (C) was detected by Kline, Ecker and Young in the corpuscles of 162 of 200 Group II adults. This substance was also detected in fifty-one of 100 new-born Group II infants.

Nonspecific Complement Fixation.—Nonspecific complement fixation with normal rabbit serum and extract and infusion bouillons is described by Sanderson and its possible bearing on the theory of a bacteriophagus antigen antibody union as based on the complement fixation test is pointed out.

Specific Substances in Tubercle Bacillus.—With the successive use of different lipoid solvents, the effectiveness of extracts from tubercle bacilli that Dienes and Schoenheit obtained were established as antigens in the complement fixation test. With the separation of the ether and alcohol soluble and acetone insoluble fraction of the extracts and in several cases with washing them with water, they obtained from all extracts examined preparations which were active as antigens very closely in the same amount, 0.00020 to 0.00030 mg. being the antigen unit. They did not succeed with continued purification in enhancing more the potency of the preparation.

Journal of Laboratory and Clinical Medicine, St. Louis

10: 603-696 (May) 1925

*Microscopically Demonstrable Fat in Normal Human Heart Muscle. A. M. Master, New York.—p. 603.

Typical Fall Surveys of Hay-Fever Flora. O. C. Durham, Kansas City, Mo.—p. 610.

Laboratory in Diagnosis and Treatment. W. Burdick, Denver.—p. 613.

*Tissue Autolysis in Vivo. I. Blood Changes; Physical and Chemical. E. C. Mason, E. C. Davidson, C. W. Matthew and P. B. Rastello, Detroit.—p. 622.

*II. Points of Action of Sodium Phenobarbital and Phenobarbital in Lowering Blood Pressure. C. M. Gruber and R. F. Baskett, St. Louis.—p. 630.

Synergistic Analgesia and Anesthesia; Magnesium Sulphate, Ether, Morphin and Procain. J. T. Gwathmey and C. W. Hooper, New York.—p. 641.

Acute Myeloid Leukemia: Case. A. A. Blair, Fort Smith, Ark.—p. 659.

*Simple Therapeutic Method for Standardization of Digitalis. J. B. Berardi, M. C. Canan and H. McGuigan, Chicago.—p. 661.

Proposed Modification of Kaiserling Method for Preservation of Specimens for Display Purposes. R. Lundquist and H. E. Robertson, Rochester, Minn.—p. 665.

Modified Gram Stain (Ruhland). A. H. Sanford, Rochester, Minn.—p. 668.

Improved Self-Feeder for Rats. R. Hoagland and O. P. Clipper, Washington, D. C.—p. 669.

Improved Device for Determination of Dextrose in Urine by Fermentation. R. Szymanowitz, Newark, N. J.—p. 671.

Fat in Normal Heart Muscle.—Thirteen human hearts were examined by Master. His findings have convinced him that in human heart muscle microscopically visible fat is normally present. The fat resides in the sarcoplasm between the muscle fibrils, and is arranged in longitudinal and transverse rows. Apparently, the amount of fat has no relation to the state of nutrition at the time of death; neither has the age of the individual, the color, nor the sex. The so-called pigment or brown atrophy of the heart, which is supposed to be an indication of degenerative processes, e. g., senility, was found in moderate amounts in two healthy boys, one 8 years old and the other 15.

Tissue Autolysis in Vivo.—The adsorption of all dead or injured body tissue, as well as organic foreign material introduced into the body, is accomplished principally through the action of autolysis. The degree of toxicity accompanying such adsorption apparently depends on the toxicity of the by-products liberated during autolysis. With this conception of autolysis, Mason et al. believe it becomes necessary to assume that the toxicity accompanying burns is possibly due to the rapid liberation of such toxic by-product and it is likewise highly suggestive that the malaise accompanying roentgen-ray irradiation is the result of the liberation of a toxic material associated with autolysis of body tissue.

Effect of Phenobarbital on Heart.—Many of the earlier writers believed that the heart rate was accelerated under the influence of phenobarbital and sodium phenobarbital. Gruber and Baskett have been unable to confirm this. They found as the usual effect that the heart rate is slowed, the heart's force is diminished and that the heart itself is dilated slightly when acted on by sodium phenobarbital. There appears to be a greater depression of the cutaneous vessels than of the visceral vessels and the vessels of the limb dilate while those of the intact intestine, kidney and spleen contract. However, perfusion experiments show that the vessels of the kidneys may also dilate and those of the limb may contract.

Standardization of Digitalis.—The method presented by Berardi, Canan and McGuigan is based on a therapeutic standard and requires very little time and expense. Standardization may be secured from the use of a few dogs. After about one week these dogs can be used again for standardization, thus eliminating a great expense for new animals. With a single dog, without injuring him, one may closely approxi-

mate the strength of a given preparation, since 0.03 c.c. per kilogram of a standard tincture will usually cause nausea and vomiting and 0.01 c.c. will cause considerable slowing of the heart rate. If a group of dogs be kept for the standardization, very dependable results can be obtained.

Journal of Pharmacology and Experimental Therapeutics, Baltimore

25: 275-355 (May) 1925

Relation of Dosage to Effect. H. L. F. Shackell, Salt Lake City, Utah.—p. 275.
*Action of Alcohol on Circulation. R. J. S. McDowall, London.—p. 289.
*Mechanism of Action of Antipyretic Drugs. T. S. Githens, New York.—p. 309.
Some Effects of Arsonium, Stibonium, Phosphonium and Sulfonium Compounds on Autonomic Nervous System. R. Hunt, Boston, and R. R. Renshaw, New York.—p. 315.

Action of Alcohol on Circulation.—McDowall contends that, even in therapeutic doses, alcohol reduces the venous pressure in man and may relieve the heart in this way. One can understand why, on purely physiologic grounds, chronic alcoholics are notoriously bad subjects in infectious conditions, especially pneumonia. The hearts of such individuals will be frequently subjected to periods of diminished venous filling in which it is called on to do very little work per beat, and as the heart, like any other organ, adapts itself to the amount of work it has to do, it will become gradually less efficient and less capable of dealing with an additional load such as occurs in an emergency like pneumonia. The special liability of chronic alcoholics who take little physical exercise to be subjects of cardiac failure is well known, and no doubt it is for a similar reason that the prognosis in pneumonia becomes increasingly worse as the patient gets older and his heart becomes less efficient.

Mechanism of Action of Antipyretic Drugs.—The experiments reported by Githens covering five species of animals and two antipyretic drugs, antipyrin and pyramidon, indicate that the extent of fall in body temperature occasioned by a given dose of an antipyretic, is chiefly dependent on two variables: (1) The effect of antipyretic drugs on body temperature will be the greater the higher is the metabolic rate of the individual. (2) The more the temperature of the surrounding air is below that of the animal, the greater will be the fall of body temperature.

Journal of Urology, Baltimore

13: 497-573 (May) 1925

Radiographic Evidence of Association of Ureteral Stricture and Urinary Calculi. G. L. Hunner, Baltimore.—p. 497.
*Bilateral Heminephrectomy in Bilateral Double Kidney. D. N. Eisendrath and F. M. Phifer, Chicago.—p. 525.
Palliative Treatment of Bladder Diverticula. J. S. Read, Brooklyn.—p. 537.
New Electrodes for Application of Diatheramy to Prostate. M. Stern, New York.—p. 545.
Unusual Dilatation of Urethra with Valve Formation. H. C. Bumpus, Jr., Rochester, Minn.—p. 551.
Probable Case of Triorchidism. H. G. Holder, New York.—p. 555.
Infection of Female Genitalia by Organism of Vincent; Case. E. McCormac, New Orleans.—p. 565.
Automatic Cystoscopic Irrigating Apparatus. E. Davis, Omaha.—p. 569.

Bilateral Heminephrectomy.—Eisendrath and Phifer assert that their case is the first one reported of resection of both lower portions (heminephrectomy) of double kidneys on both sides of the body. The diagnosis was made by finding two ureteral orifices on each side of the bladder and confirmed by the use of opaque catheters and pyelography. A preoperative diagnosis was made of left sided noncalculous infected hydronephrosis (in both instances) of the lower portions of double kidneys. One set of blood vessels supplied both portions on both sides. Heminephrectomy was performed at intervals of two months with uneventful recovery.

Laryngoscope, St. Louis

35: 345-422 (May) 1925

Fractures of Malleus. D. W. Drury, Boston.—p. 345.
Control of Intractable Singultus (Hiccough) Through Nasal (Sphenopalatine-Meckel's) Ganglion. C. S. Rehfeldt, St. Louis.—p. 354.
Foreign Body (Penny) in Esophagus. P. S. Stout, Philadelphia.—p. 357.
Physiology of Tonsils. D. Nussbaum, Philadelphia.—p. 359.
Food Impaction in Esophagus; Simple Treatment. J. E. Lebensohn, Chicago.—p. 367.
Tuberculosis of Tonsil. J. A. Morgan, Honolulu, T. H.—p. 368.
Vacuum Tonsillectome. F. A. Beck, Allentown, Pa.—p. 371.
Vacuum Frontal Headache. L. R. Effler, Toledo, Ohio.—p. 375.
End-Results of Tonsillectomy. H. H. Amsden, Concord, N. H.—p. 382.
Tonsil Question. H. D. Newkirk, Anaheim, Calif.—p. 384.
Endoscopy of Esophagus for Diagnosis and Treatment of Stricture, Cardiospasm and Malignant Disease. H. H. Forbes, New York.—p. 391.
Nasal Infections. F. W. Briggs, Duluth, Minn.—p. 396.
Capillary Suction as Aid in Treatment of Ear, Nose and Throat Diseases. J. C. Beck, H. L. Pollock and F. L. Lederer, Chicago.—p. 402.
Technic for Submucus Resection, with Presentation of Membrane Elevator. M. F. Jones, New York.—p. 406.

Medical Journal and Record, New York

121: 589-656 (May 20) 1925

Mechanism of Disease. S. D. Ludlum and E. McDonald, Philadelphia.—p. 589.
Spirochetosis Riverensis. L. A. Micheloni, Montevideo, Uruguay.—p. 593.
Intraperitoneal Implantation of Cervical Carcinoma. P. E. Dunham, New York.—p. 597.
Psychology, Psychopathology and Psychotherapy in Tuberculosis in Civilian and Military Life. S. A. Knopf, New York.—p. 601.
Simplified Device for Chest Aspiration. M. A. Bridges, New York.—p. 605.
Diagnosis of Acute Conditions of Brain. J. V. Haberman, New York.—p. 606.
*Metastatic Carcinoma of Pleura. H. M. Feinblatt, Brooklyn.—p. 609.
Mercurial Poisoning by Absorption from Vagina. C. E. Kynd and M. C. Myerson, Brooklyn.—p. 610.
Treatment of Locomotor Ataxia and Proper Method of Giving Intravenous Injections of Mercury and Arsenic. C. G. Cusmton, Geneva, Switzerland.—p. 612.
Tryparsamide in Neurosyphilis. H. P. Hyder, Washington, D. C.—p. 613.
Morphologic Factor in Respect of Rheumatism and Other Affections of Joints. G. F. Crookshank, London.—p. 615.
Endocrines in Relation to Rheumatic Fever and Rheumatism Arthritis. L. J. Llewellyn, London.—p. 618.
Protein Shock in Treatment of Rheumatoid Arthritis. J. N. Cruickshank, Glasgow.—p. 621.
Course of Rheumatic Heart Disease. C. F. Coombs, Bristol, England.—p. 623.
Arthritis and Infection of Digestive Tract. N. Mutch, London.—p. 625.
Diet in Rheumatism. A. H. Wright, Toronto.—p. 628.

Metastatic Carcinoma of Pleura.—In the case reported by Feinblatt, the discovery of clusters of cells of malignant type in the sediment of a centrifugated specimen of pleural fluid facilitated the diagnosis of metastatic carcinoma of the pleura. The patient was a woman, 43 years of age, with a history of cancer of the left breast and a radical operation three years prior to her immediate illness, and who exhibited symptoms, signs and a radiographic picture of pleural effusion on the right side.

Nebraska State Medical Journal, Norfolk

10: 153-192 (May) 1925

Pathologic Physiology of Spleen. M. G. Wohl, Omaha.—p. 153.
Modern Aspects of Nutrition. V. E. Levine, Omaha.—p. 156.
Kielland Forceps. C. F. Moon, Omaha.—p. 163.
Radium in Gynecology. C. E. Sayre, Norfolk.—p. 168.
Pneumococcus Peritonitis. F. G. Kolouch, Schuyler.—p. 174.
Pernicious Anemia. G. I. McCrea, Table Rock.—p. 176.
Other Causes of Glaucoma. D. D. Sanderson, Lincoln.—p. 177.
Blood Nitrogen Method for Practitioner. M. J. Breuer, Lincoln.—p. 178.
Etiology and Prevention of Scarlet Fever. J. D. Reid, Pilger.—p. 179.
Fracture of Pelvis: Case. H. W. Orr, Lincoln.—p. 181.

Oklahoma State Medical Association Journal, Muskogee

18: 96-119 (May) 1925

Spasmodic Stenosis of Esophagus. R. N. Smith, Tulsa.—p. 96.
Responsibility for Preschool Child. J. P. Torrey, Bartlesville.—p. 99.
Primipara—Care and Delivery. C. Brydia, Ada.—p. 102.
Routine Technic in Management of Labor in Home. J. G. Binkley, Oklahoma City.—p. 104.
Maternal Mortality in United States. G. C. Mosher, Kansas City.—p. 107.

Philippine Journal of Science, Manila

26: 447-592 (April) 1925

Additions to Our Knowledge of Philippine Flora. I. E. D. Merrill, Berkeley, Calif.—p. 447.
Nicotine Content of Philippine Tobacco Stems. W. L. Brooke, Manila.—p. 497.
Semiselective Antiseptic Effect of Vapors of Vegetable Oils, Essential Oils, Their Constituents and Similar Compounds. O. Schöbl, Manila.—p. 501.
Some Far Eastern Muscide (Diptera). J. R. Malooch, Washington.—p. 507.

Parandes, New Cixiid Genus (Homoptera, Fulgoroidea). F. Muir, Honolulu.—p. 511.
Three New Hymenoptera from Philippine Islands. R. M. Fouts, Washington, D. C.—p. 515.
Internal Metazoan Parasites Collected from Ruminants in Philippine Islands. B. Schwartz, Washington.—p. 521.
Tenebrionides (Coleoptera) of Indomalay, III. H. Gebien, Hamburg, Germany.—p. 535.

Porto Rico Medical Association Bulletin, San Juan

19: 1-47 (April) 1925

Appeal to Legislators in Regard to Carity Medical Work. Committee Report.—p. 3.
Infant Mortality in Porto Rico. A. Fernós Isern.—p. 26.
*Modern Treatment of Bronchial Asthma. R. M. Suárez.—p. 31.
Asthma; Etiology and Treatment. Carlos González.—p. 37.
*Experiences with Intraspinal Anesthesia. F. R. De Jesús.—p. 40.

Treatment of Asthma.—Suárez remarks that the only two cases, out of forty treated with the old methods, which showed improvement were those in which he had accidentally stumbled on the cause of the anaphylactic condition inducing the asthma. In the last seven years his treatment based on discovery of the special irritating protein involved has been almost invariably successful. Different members of the same family may be affected by different proteins. He has found shellfish the most common cause for asthma in Porto Rico, but not the species incriminated in the United States. Only 30 per cent. failed to respond to tests for hypersensitization, and these he treated with regulation of the diet, breathing lessons and an autogenous vaccine. Two patients responded with anaphylaxis to a fungus from their sputum, and one improved under a vaccine made with it. In two cases an unsuspected tuberculous focus was discovered at the hilum.

Intraspinal Anesthesia.—De Jesús restricts this method of anesthesia to operations low in the pelvis. Its special advantages were evident in some cases he describes, including the case of a man of 70 with prostatic obstruction, high blood pressure and symptoms of uremia. The only by-effects he encountered were occasional transient headache before he abandoned stovain for procain. The intraspinal technic should be seriously considered, he says, in diabetes, toxemias, nephritis and eclampsia.

Public Health Journal, Toronto

16: 201-250 (May) 1925

Purity of Drugs. V. E. Henderson.—p. 220.
Milk and Dairy Inspection. J. B. Hollingsworth.—p. 223.
Educational Program for Child. A. D. Hardie.—p. 227.
Postgraduate Medical Education in Canada. G. S. Young, Toronto.—p. 234.

Radiology, St. Paul

4: 355-444 (May) 1925

Charcot's Joints. C. G. Sutherland, Rochester, Minn.—p. 355.
Congenital Syphilis of Bones and Joints. C. C. Dennie, Kansas City, Mo.—p. 364.
Cancer of Lip: Treatment by Means of Electrothermic Coagulation, Radium and Roentgen Rays. J. T. Stevens, Montclair, N. J.—p. 372.
Cellular Changes Observed in Irradiated Tissue, Especially of Cancer of Rectum. H. H. Bowing, Rochester, Minn.—p. 378.
Effects of Roentgen Ray and Radium Therapy on Tissues. H. R. Wahl, Kansas City, Kan.—p. 384.
Difficulty of Diagnosis of Carcinoma of Breast. M. B. Clopton, St. Louis.—p. 390.
Results of Radiologic Treatment of Carcinoma of Breast. J. F. McCullough, Pittsburgh.—p. 395.
*Is Cancer True Disease or Result of Condition of Change in General Organization of Organism? M. T. Burrows, St. Louis.—p. 407.
Radioactive Substances and Their Therapeutic Uses and Applications. J. Muir, New York.—p. 417.
Adamantine Tumors of Jaw. B. F. Schreiner and W. L. Mattick, Buffalo, N. Y.—p. 421.
Under-Exposure as Diagnostic Point in Cases of Non-Opaque Foreign Bodies in Bronchi. S. W. Donaldson, Ann Arbor, Mich.—p. 427.

Nature of Cancer.—Facts presented by Burrows are said to show quite definitely that cancer is not a disease in the sense of the infectious diseases, but that it is the normal reaction of body cells to a particular environment. It is to be classed, therefore, with gangrene and atrophy. Cancer comes into existence when the normal arrangement of cells and blood vessels is disturbed, so that the cells become sufficiently crowded in an area of reduced circulation. These conditions lead, in the presence of oxygen, to the formation or the accumulation of an active growth-stimulating substance.

South Carolina Medical Association Journal, Greenville

21: 113-136 (May) 1925

Annual Physical Examination. J. H. Cannon, Charleston.—p. 120.

Southern Medical Journal, Birmingham, Ala.

18: 315-386 (May) 1925

*Etiology of Gastric and Duodenal Ulcer. J. Friedenwald and T. H. Morrison, Baltimore.—p. 315.
*Duodenal Ulcer Simulating Gastric Crises of Tabes: Five Cases. G. B. Eusterman, Rochester, Minn.—p. 319.
Multiple and Recurrent Ulcers of Stomach and Duodenum. J. R. Verbrycke, Jr., Washington, D. C.—p. 324.
*Evil Results of Indiscriminate Removal of Tonsils in Adults. L. J. Moorman, Oklahoma City.—p. 330.
*Angina Pectoris. R. B. McBride, Dallas, Texas.—p. 334.
Eczema in Infants. D. L. Smith, Spartanburg, S. C.—p. 337.
Syphilophobia. E. B. Block, Atlanta, Ga.—p. 341.
Treatment of Skin and Mucous Membrane Cancers. J. A. Elliott, Charlotte, N. C.—p. 343.
Midwife Problem. E. R. Hardin, Lumberton, N. C.—p. 347.
*Hypertonic Solutions; Magnesium Sulphate; Value in Certain Types of Brain Injury. C. E. Dowman, Atlanta, Ga.—p. 351.
Hematuria of Renal Origin. J. W. Butts, Helena, Ark.—p. 356.
Dexterity Versus Force in Treatment of Fractures. J. D. Trawick, Louisville, Ky.—p. 359.
Varicocele of Broad Ligaments: Two Cases. E. A. Wilcox, Augusta, Ga.—p. 361.
Acute Retroperitoneal Appendicitis. D. C. Donald, Birmingham.—p. 364.
Head Injuries. A. G. Rutherford, Welch, W. Va.—p. 368.
Treatment of Nasal Ganglion. R. J. Payne, St. Louis.—p. 373.
Foreign Bodies in Air and Food Passages: Twenty-Five Cases. P. Stiles, Birmingham, Ala.—p. 376.

Etiology of Gastric and Duodenal Ulcers.—In a series of 200 cases of gastric and duodenal ulcers reviewed by Friedenwald and Morrison the following causative factors were noted: infections, 84 cases; disturbances of the nervous system, 28 cases; disturbances of the endocrine system, 8 per cent.; hyperchlorhydria, 17 per cent.; trauma, 4 per cent.; anemia (chlorosis), 28 per cent.; arteriosclerosis, 26 per cent., and syphilis, 5 per cent.

Duodenal Ulcer Simulating Gastric Crisis of Tabes.—In the five cases reported by Eusterman the lesions were in the duodenum, with only moderate obstruction, and in all pain was a negligible feature.

Tonsillectomy a Major Operation.—Moorman asks that tonsillectomy should be considered a major operation requiring months for complete convalescence, and should be employed only when indications are fairly clear and of sufficient significance to justify such a procedure.

Angina Pectoris.—Of thirty-four cases of true angina pectoris seen by McBride and an associate, twenty-five patients described their pain as being substernal, eight precordial, seven epigastric, six into the left arm, four into both arms, two in the right arm, two in the left hypochondrium, and one in the left wrist. In all the pulse rate was much slower than normal, becoming more rapid when relief was obtained by nitrites. Systolic blood pressure rose in each case above the patient's normal until nitrites were given. As relief was being obtained, the pressure fell from 30 to 40 millimeters to rise again after a variable period of time to slightly above the normal for the individual. The blood pressure estimates taken in an interval were: systolic, lowest 110, highest 200, with an average of 143; diastolic, lowest 65, highest 120, average 90. Associate conditions were myocarditis, 23 cases; general arteriosclerosis, 15 cases; oral sepsis, 13 cases; aortitis, 7 cases, and syphilis, 1 case.

Use of Hypertonic Solutions in Brain Injuries.—Experience has led Dowman to give a series of brian injury cases 10 c.c. of a 10 per cent. solution of magnesium sulphate intravenously every four hours, for six or eight doses, after which the drug is given by mouth. All of these cases progress satisfactorily and so far have given no evidence whatsoever of magnesium sulphate poisoning. In one case very rapid disappearance of subcutaneous edema prompts the suggestion that this type of medication might perhaps be of value in edema of the lungs.

Tennessee State Medical Association Journal, Nashville

17: 365-403 (April) 1925

Present Unsettled and Chaotic Condition of Medical Profession. F. D. Smythe, Memphis.—p. 365.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Dermatology and Syphilis, London

37: 259-300 (June) 1925

Chronic Erythema of Legs in Girls and Young Women, Sometimes Leading to Diffuse Thickening and Sclerodermia-Like Induration of Skin and Subcutaneous Tissue Without Nodules or Ulcers. F. P. Weber.—p. 259.
Purpura Annularis Telangiectodes. S. E. Dore.—p. 263.
Sensitization of Skin to Sunlight: Treatment by Peptone Injections. W. F. Castle.—p. 267.
Cat Ringworm. M. S. Thomson.—p. 269.

Bristol Medico-Chirurgical Journal

62: 73-156 (No. 156) 1925

*Asthma. J. R. Charles.—p. 84.
Diagnosis of Dyspepsias. A. R. Short.—p. 88.
Present Position of Surgery of Nervous System. P. Sargent.—p. 101.
*Case of Intrathecal Extramedullary Spinal Tumor. A. W. Adams.—p. 116.
Differential Diagnosis of Focal Infection in Nasal Sinuses Causing Ocular and Other Systemic Infections. P. Watson-Williams.—p. 121.

Pressure Asthma.—Charles cites the case of a man who throughout his life had been subject at intervals to typical asthmatic attacks. He would wake up at 2 or 3 a. m. with severe dyspnea and all the usual symptoms of asthma, which would clear up in the usual way, leaving him free from it the following day, perhaps to be repeated on subsequent nights. Climate had a great deal to do with these attacks. Treatment being of no avail, a roentgen-ray examination was made. It showed a definite shadow in the mediastinum on the right side bending the trachea over to the left, which proved to be due to an intrathoracic adenoma of the thyroid. The tumor was successfully removed and since then no asthmatic atacks have occurred.

Diagnosis of Spinal Tumor with Aid of Lipiodol.—The case cited by Adams demonstrates the use of the intrathecal injection of lipiodol as a precise means of localizing compression of the spinal cord, and what becomes of the solution. The symptoms pointed to a tumor within the vertebral canal causing pressure on the cord about at the level of its eighth dorsal segment. This was confirmed by a positive Froin's syndrome and the injection of lipiodol and radiography. What becomes of the lipiodol was shown in an interesting way by the roentgenogram taken three months after operation. Since the removal of the obstructing tumor it had trickled down to the level of the fifth lumbar vertebra. Very little absorption seems to have occurred, which points to the inert nature of the injected lipiodol.

British Journal of Ophthalmology, London

9: 257-320 (June) 1925

Sir Jonathan Hutchinson. R. Godlee.—p. 257.
Literature on Crystalline Lens. D. R. Adams.—p. 281.
Hematoma of Cornea. G. Young and A. W. D'Ombrain.—p. 299.

British Medical Journal, London

1: 1027-1064 (June 6) 1925

*Infundibulin. W. B. Bell.—p. 1027.
*Treatment of Congenital Club Foot. B. W. Howell.—p. 1031.
*Diabetic Treatment Simplified. F. C. Eve.—p. 1033.
*Schick Test and Active Immunization Against Diphtheria. J. P. Watt.—p. 1035.
*Jejunocolostomy in Treatment of Acute Spreading Peritonitis. A. J. Blaxland.—p. 1037.
Anencephalic Fetus. D. S. Richmond.—p. 1038.
Case of Acute General Tetanus. R. R. Foote.—p. 1038.

Infundibulin.—Bell discusses the indications for the use of infundibulin in surgical and obstetric practice. He urges that infundibulum must always be employed with care, and with a due regard to the scientific indications in every case. The greatest harm and the gravest disasters have occurred in obstetric practice from the injudicious use of this potent substance during labor.

Treatment of Congenital Clubfoot.—Howell emphasizes the fact that the treatment of congenital clubfoot must commence from the moment of birth, when the structures in the foot are soft and pliable, and little pain or shock is experienced by the infant. The principles of treatment are to stretch the contracted structures causing the deformity, and to relax and then educate those muscles which will restore the muscle balance of the foot. The usual methods are by splinting with malleable iron, by adhesive strapping, by plaster of Paris, by clubfoot tin shoes, and by operation (Thomas wrench, etc.). The prognosis is excellent in those cases seen early, and fair in neglected and "relapsed" cases, and in those children who have already been operated on. Treatment is more difficult, and the results not so satisfactory, in children with "stubby" heels, talipes calcaneovalgus, or simple midtarsal varus.

Diabetic Treatment Simplified.—Eve puts the diabetic gradually on a diet free from carbohydrate, and if sugar persists and no ketones appear, he diminishes the quantity. If ketones appear, from 1 to 3 ounces of bread (weighed) is added, and enough insulin injected to bring the sugar almost to zero. Or weekly "starvation days" on greens, bouillon, and coffee may obviate the necessity for insulin.

Active Immunization Against Diphtheria.—Watt is convinced that if toxin-antitoxin inoculation against diphtheria were adopted generally it would lead to a great diminution in the incidence of the disease and to a still greater diminution in the case mortality.

Jejunocolostomy in Acute Peritonitis.—In a case cited by Blaxland the patient had acute spreading peritonitis, and was very obviously going down hill. A jejunocolostomy was performed with immediate beneficial result, and the peritonitis completely subsided in two weeks' time. A sloughing ischiorectal abscess unfortunately developed, and the patient died from its effects on the twenty-sixth day after the operation.

China Medical Journal, Shanghai

39: 383-478 (May) 1925

Amebiasis; Yatren Treatment. J. F. Kessel and O. Willner.—p. 383.
*Hemoptysis in Pulmonary Tuberculosis. C. Hsi-ang.—p. 397.
*Bronchial Spirochetosis in Canton. W. W. Cadbury, L. N. Jeu and J. L. Harvey.—p. 408.
Present Status of Bronchoscopy and Esophagoscopy. J. H. Liu.—p. 414.
*Mercurochrome in Treatment of Chronic Malaria. D. B. Avison and B. Koo.—p. 419.
League of Nations Grading of Far Eastern Ports. C. E. Lim.—p. 422.

Hemoptysis in Pulmonary Tuberculosis.—Hsi-ang states that hemoptysis is extremely common among Chinese. The routine physical examination of 1,270 apparently healthy students revealed that nearly 7 per cent. suffered from hemoptysis.

Bronchial Spirochetosis in Canton.—Four cases are reported by Cadbury, Jeu and Harvey in which the sputum showed spirochetes, but tubercle bacilli could not be found. A roentgenogram was taken of three patients and in two there was evidence of pulmonary tuberculosis, which was confirmed by the subcutaneous tuberculin test. In the third, the roentgenogram was negative. Neo-arsphenamin was given to the two tubercular patients with marked improvement and the disappearance of spirochetes from the sputum. A similar result was obtained in the third case with sodium cacodylate.

Mercurochrome in Chronic Malaria.—The treatment of chronic malaria by a single intravenous injection of mercurochrome (0.003 gm. per kilogram of body weight in a 1 per cent. solution) has given a cure in 100 per cent. of the cases treated by Avison and Koo.

Edinburgh Medical Journal

32: 281-140 (June) 1925

*Radical Cure of Hernia in Infants and Young Children. G. Herzfeld.—p. 281.
*Ruptured Aneurysms of Abdominal Aorta Due to Tuberculosis. W. A. Dafoe.—p. 291.
Cyst of Vomeronasal Organ. J. J. Levin.—p. 296.
Case of Adenoma of Bile Ducts. R. C. Alexander.—p. 301.
Treatment of Spastic Paralysis by Sympathetic Ramisection. W. Q. Wood.—p. 305.

Radical Cure of Hernia in Infants.—Of 1,000 consecutive cases of hernia in children, Herzfeld says inguinal hernia predominates largely over all other forms, 87.7 per cent.; 11.9 per cent. were umbilical cases, the remainder were femoral and epigastric. Abnormality in descent of the testicle was noted in thirty-two cases. In seven cases the bladder formed part of the inner wall of the sac. Minute bright yellow

bodies, which, on microscopic examination, were seen to be derived invariably from the suprarenal body, were noted in four cases. Tuberculous disease of the sac was found in thirteen cases, and in four of these the disease had spread to the testicle and epididymis and necessitated orchidectomy. Enlarged mesenteric glands were palpated in the abdomen in about 15 per cent. of cases. Only one death occurred in this series. One infant, aged 4 months, died on the operating table before the operation had been commenced, and was apparently the subject of a status lymphaticus.

Ruptured Aortic Aneurysm Due to Tuberculosis.—In one of the cases cited by Dafoe the rupture of the aorta was due to the spread of a tuberculous process of its adventitia and media from an attached tuberculous lymph gland. The changes produced in the aorta, which were especially marked in the medial layer, led to the formation of the aneurysm. About twelve days before death, the patient complained of the sudden attack of acute pain in the upper right abdomen. The true aneurysm had probably ruptured and formed a false aneurysm. Finally death was caused by the rupture of the false aneurysm and hemorrhage. In the origin and course of production of the aneurysm the second case was similar to the first one.

Indian Medical Record, Calcutta

65: 129-160 (May) 1925

Race, Class, Sex and Age Incidence of Kala-Azar. A. C. Chatterjee.—p. 129.
Biochemistry of Thyroid. A. Roy.—p. 1333.
Smallpox and Measles. K. C. Dutt.—p. 139.

Japan Medical World, Tokyo

5: 119-143 (May 15) 1925

*Etiology of Raynaud's Disease. S. Iwai and N. Mei-Sai.—p. 119.
Special Features of Shape of Chest of Tubercular and Healthy Japanese. U. Hasegawa.—p. 121.

Etiology of Raynaud's Disease.—Iwai and Mei-Sai are of the opinion that Raynaud's disease has its pathogenicity in the action of a strongly powerful auto-agglutinin which has its full power only in cold atmospheric environments.

Journal of State Medicine, London

33: 251-300 (June) 1925

Moslem Pilgrimages and International Control of Disease. F. G. Clemow.—p. 251.
Importance of Education on Health in Work of Public Health Department. W. A. Daley.—p. 270.
Outline of History of Plague in Hong Kong. A. G. M. Severn.—p. 274.
Chronic Sepsis in Relation to Malignant Disease. F. St. J. Steadman.—p. 285.

Lancet, London

1: 1065-1116 (May 23) 1925

Significance of Ocular Symptoms. P. Flemming.—p. 1065.
Miners' Nystagmus. A. F. Fergus.—p. 1068.
*Treatment of General Paralysis and Tabes by Tryparsamide. W. S. Dawson.—p. 1072.
*Three Cases of Unusual Forms of Lipoma of Breast. D. C. L. Fitzwilliams.—p. 1074.
*Diabetes, Surgical Infections and Insulin. R. Carrasco-Formiguera.—p. 1576.
Diverticulum of Pharynx. J. W. Thomson.—p. 1678.

Treatment of General Paralysis and Tabes by Tryparsamide.—In none of the twenty cases cited by Dawson was there produced any remarkable result from the use of tryparsamide such as might not have been obtained by the administration of other arsenic compounds. Several cases of paresis have had their downward course arrested, while others have improved to a lesser extent. Whether tryparsamide is really more potent than other arsenicals is not proved in this series of cases, but the drug is certainly worth further trial.

Lipoma of Breast.—In the first case reported by Fitzwilliams there was a local intramammary lipoma and a scirrhus tumor in the same breast. In the second case there was a large diffuse intramammary lipoma occupying and distending both breasts. In the third case there was a fatty tumor in one breast and a scirrhus in the other. The lipoma showed the unusual occurrence of the deposition of calcium salts in the fatty cells.

Diabetes, Surgical Infections and Insulin.—From personal experience of cases of surgical infection in diabetic patients and of their treatment by insulin Carrasco-Formiguera is convinced that even in the more severe cases of infection in diabetic patients it is always possible (unless there is not enough time before the patient dies) to attain a normal blood sugar level if insulin be used in large enough doses, properly spaced, throughout the day. It may be difficult, or even impossible, to keep the blood sugar level absolutely normal, but it may be kept so most of the time and not far from normal the rest of the time. Such a result may be obtained without any dangerous underfeeding, which must be carefully avoided. In fact, with an adequate combination of diet and insulin such patients may be kept sugar-free and at the same time well nourished, much better than would be possible by any other measures, dietetic or otherwise.

1: 1173-1228 (June 6) 1925

Pneumonia Incidence and Climate in India. L. Rogers.—p. 1173.
Skin Tests, Asthma and Idiosyncrasy. F. G. Chandler.—p. 1177.
Cancer of Breast. S. Wyard.—p. 1179.
*Case of Recurrent Pneumothorax. L. T. Burra.—p. 1182.
*Treatment of Psoriasis. E. C. B. Ibotson.—p. 1182.

Recurrent Pneumothorax.—Burra's case is of interest as one in which there was recovery from pneumothorax, with a liquid effusion, and a recurrence of the condition about five years later with fatal issue.

Treatment of Psoriasis.—Thyroid extract internally, 1 grain, three times daily, combined with the external use of tar, is advocated by Ibotson as good treatment for psoriasis.

1: 1229-1278 (June 13) 1925

Interpretation of Electromyogram. E. D. Adrian.—p. 1229.
*Tuberculosis in Tropics. J. K. Fowler.—p. 1233.
*"Periodicity" of Cholera in India. A. J. H. Russell.—p. 1237.
Case of Hemophilia. W. B. Burke.—p. 1237.
Coagulen (Ciba) for Hemoptysis. A. J. Morland.—p. 1238.

Tuberculosis in Tropics.—Fowler concludes his address with the statement: Any country that rejects compulsory vaccination and retains its slums must pay for smallpox hospitals and tuberculosis settlements. The tuberculosis problem is to a very large extent a housing problem in all parts of the world.

Periodicity of Cholera in India.—Russell says that cholera in Madras Presidency, for a period of twenty-five years has gone through a regular six-yearly cycle. No such periodic trend has previously been demonstrated in connection with this disease. The same six-yearly periodicity has occurred in Bombay Presidency, the Punjab, the United Provinces, the Central Provinces, and in Mysore over the period 1896-1923. This fact is of far-reaching importance in connection with the measures usually utilized for prevention of the disease.

Medical Journal of Australia, Sydney

1: 499-526 (May 16) 1925

Hand in General Practice. D. A. Cameron.—p. 499.
Attempt to Interest Those Engaged in General Practice in Two or Three Ophthalmologic Matters. J. L. Gibson.—p. 504.
Case of Exstrophy of Bladder. D. A. Cameron.—p. 509.
Lipoma of Cervical Region. J. C. Shand, Jr.—p. 510.

Practitioner, London

114: 385-446 (June) 1925

Relief of Catarrhal Deafness. J. Dundas-Grant.—p. 385.
Cancer and Cysts of Breast. D. C. L. Fitzwilliams.—p. 394.
Routine Treatment of Syphilis. L. W. Harrison.—p. 400.
Mechanism of Cardiac Failure. B. T. Parsons-Smith.—p. 409.
Constipation and Pregnancy. C. S. Lane-Roberts.—p. 426.
Constipation and Its Radical Treatment. A. S. Gillett.—p. 431.
*Two Cases of Acute Lymphatic Leukemia. D. Hall.—p. 436.
Value of Quinin Bihydrochlorid Combined with Pituitary Extract in Labor. T. J. Ryan.—p. 438.

Acute Lymphatic Leukemia.—Of the two cases of acute lymphatic leukemia reported by Hall, the first conformed to the ordinary type, but in the second so sudden were the onset and the progress of the disease, that the patient was dead ere he had realized that he was ill, and there was barely time in which to make the diagnosis. A clergyman, aged 42, had had "a sunstroke" during the summer and had complained of vertigo since. He consulted a physician, December 28, for

a small sore on the lower lip. On the thirty-first the sore was nearly well, but he noticed bruises on his chest and complained of headache. When Hall saw him he had in all eight "bruises," varying in size, on the chest, legs and arms, and also a few discrete petechiae, of which three were on the buccal mucous membrane. The original sore was just visible. On one occasion there had been slight bleeding from the right nostril. Apart from the fact that he appeared more than his age, the man looked well. His color was particularly good A careful search was made for enlarged glands but none were found superficially, nor was there any evidence of enlargement of the deep glands. The liver and spleen were not enlarged and there were no cutaneous nodules. By Tallqvist's scale the hemoglobin was estimated at 85 per cent. Blood coagulation appeared to be normal. To the patient himself, the diagnosis was made of "purpura," and he was told that he must remain in bed, against which decision he protested strongly, for he said that, apart from headache, he felt perfectly well. The following day he had what was described as "a fit." He was found comatose, with unequal pupils. Death followed some hours later, the immediate cause evidently having been extensive meningeal hemorrhage.

South African Medical Record, Cape Town

23: 177-200 (May 9) 1925

*Inoculated Malaria. A. Pijper and E. D. Russell.—p. 178.

Inoculated Malaria.—Pijper and Russel assert that in early cases of simple tertian malaria an injection of neoarsphenamin is a therapia magna sterilisans. Such an injection has a provocative action on latent malignant tertian malaria, while curing a simple tertian infection. Inoculated simple tertian malaria causes a mild leukopenia, and the leukocyte curve, on the whole, runs parallel to the parasite curve. Certain deductions as regards immunity can be made from the relative height of the two curves. The authors state that many of their observations suggest a particularly active participation of the bone marrow in the pathogenesis of malaria.

Archives des Maladies du Cœur, etc., Paris

18: 273-352 (May) 1925

*Diabetic Arteritis. M. Letulle et al.—p. 273.
Paroxysmal Tachycardia. G. N. Martinez.—p. 292.
Paroxysmal Ventricular Tachycardia. T. Castellano.—p. 301.
Case of Pulmonary Stenosis. Scremini and Montes-Pareja.—p. 305.
Vaquez' Disease with Arteriosclerosis. E. Schisler.—p. 308.

Arteritis in Diabetes.—Letulle, Labbé and Heitz relate that the necropsy findings in a diabetic woman, aged 55, showed atheromatous lesions in the peripheral arteries. Owing to the hypercholesterolemia, cholesterol was retained in the inflamed intima of the arteries, thus promoting hyperplasia and obliteration of the vessels. Clinically, it was manifested by phenomena of ischemia: intermittent claudication and fatal cerebral hemorrhage.

Bruxelles Médical, Brussels

5: 830-862 (April 19) 1925

Adjuvant Measures in Treatment of Glaucoma. F. Terrien.—p. 830.
Tertiary Syphilitic Adenopathies in Morocco. Salle.—p. 835.
*Unsuspected Pregnancy Carried to Term. R. Beckers.—p. 843.
Intraspinal Anesthesia in Obstetrics. Vaudescal.—p. 845.

Unsuspected Pregnancy Carried to Term.—Beckers points to the obstetric and medicolegal interest of the case he reports, in an actress, aged 30, inclined to corpulence, with three children, aged 3, 4 and 5, and a history of constantly normal pregnancies and deliveries. During the pregnancy she made a professional tour, menstruating apparently regularly, unaware of her condition until revealed by dribbling of amniotic fluid just before delivery. The uterus then was about the size of the fifth or sixth month. No fetal sounds were audible, but palpation confirmed the impending delivery, which proceeded normally, with a normal, living child, weighing nearly 6 pounds.

Bulletin de l'Académie de Médecine, Paris

93: 523-548 (May 12) 1925

Advantages of Fish for Food. Committee Report.—p. 533.
*Infections Masking Tuberculosis. P. Courmont and Boissel.—p. 535.
Auscultation by Telephone and Radio. R. Lutembacher.—p. 540.
Minor Signs of Tuberculosis. Nigoul-Foussal.—p. 542.
*Prognosis of Urologic Operations. Blum and van Caulaert.—p. 544.

Infections Masking Pulmonary Tuberculosis.—Using fresh and rinsed sputum, Courmont and Boissel found the tubercle bacillus associated with one or several other microbes in fifty-seven of 297 cases of tuberculosis. After the appearance of the associated microbe, the tubercle bacillus may disappear definitely, or reappear afterward, thus presenting an alternating or a permanently substituted infection. In the fifty-seven cases observed, the infection in twenty-seven was of the substituted type. The prognosis of the tuberculous affection may depend on the coexisting micro-organism.

Import of Acidosis in Urologic Surgery.—Blum and Caulaert point out that patients with a normal or slightly modified alkali reserve (50-60) bear an operation on the urinary tract well, while in those with a reduced reserve (below 40) the prognosis of an operation is unfavorable. As in diabetics with pronounced acidosis, general anesthesia may prove fatal by aggravating the acidosis. An operation is contraindicated even if the uremia is slight.

93: 549-571 (May 19) 1925

Remote Results of Deep Roentgen Ray Treatment. P. Bazy.—p. 557.
"The Academy of Medicine and Social Hygiene." P. Cazeneuve.—p. 561.
Capillaroscopy. A. C. Guillaume.—p. 564.
*Prophylactic Vaccination in Surgery. E. Blanco-Acevedo.—p. 567.

Polyvalent Vaccine in Prevention of Postsurgical Infection.—Blanco-Acevedo obtained excellent results with systematic vaccination preceding an operation. No fatal outcome, phlebitis or embolism occurred in his 389 gynecologic operations. The efficiency of the vaccination is ascribed to the general reaction induced. Three subcutaneous injections of from 2 to 4 c.c. of a polyvalent vaccine were made at three day intervals, the last injection preceding the operation by three days.

Bulletins de la Société Médicale des Hôpitaux, Paris

49: 671-720 (May 8) 1925

Mercurochrome in Endocarditis. G. Caussade and E. Lafont.—p. 671.
Asthenia in Congenital Syphilis. M. Pinard.—p. 679.
*Serum Prophylaxis of Measles. R. Debré et al.—p. 682.
*Pathogenesis of Myasthenia. G. Marinesco.—p. 690.
Arterial Hypertension and Glucose Balance. Labbé and Denoyelle.—p. 699.
*Iodized Oil Reveals Pott's Disease. Oudard and Solcard.—p. 704.
Mediastinal Form of Hodgkin's Disease. Clément and Cayla.—p. 706.
Angina Pectoris with Myxedema. P. Abrami et al.—p. 712.

Prophylactic Efficacy of Serum from Persons with Measles History.—Debré and his co-workers obtained excellent results with the serum of adults with an old history of measles. They report, among other instances, the preventive injections in an asylum during an epidemic of measles. None of the children treated contracted the disease. The serum used in the beginning of the incubation stage prevented the disease in 75 per cent.; in 20 per cent. the disease occurred in an attenuated form, and in five the injection did not influence the course of the measles. A dose of 12-15 c.c. of serum was used in infants not over 2 years, and 20-25 c.c. above this age. Mixed serums from several persons are preferred, since the content of antibodies in one serum may be insufficient. Serum from parents should be preferred, even if twenty or thirty years have elapsed since they had the disease. Serum from persons in contact with measles patients proved to be efficient, as also the serum from persons convalescent from other infectious diseases. The serum from persons who had had measles long before may contain antibodies against other infections, often associated with measles.

The Sympathetic System in Myasthenia. — Marinesco emphasizes that myasthenia is due to changes in the sympathetic system. Vasomotor disturbances affect the muscle metabolism; waste products are retained in the muscles and in the walls of the capillaries, inducing dilatation of the vessels. This explains the exhaustion of muscle activity, the decrease of oxidizing ferments, and the accumulation of glycogen and lipoids in the muscle fibers. The condition improved considerably under epinephrin and suprarenal extract.

Iodized Oil in Diagnosis of Spondylitis.—Oudard and Solcard describe a case with clinical signs of osteitis of the

ileum. Roentgenograms with iodized oil revealed the existence of a tuberculous spondylitis affecting the fourth lumbar vertebra.

Comptes Rendus de la Société de Biologie, Paris

92: 1173-1260 (May 8) 1925. Partial Index

*Latent Hermaphrodism. Lipschütz et al.—p. 1179.
*Variety of Typhoid Bacillus. S. Ramsine.—p. 1188.
*Cancer and Klossiella Muris Infection. C. Bonne.—p. 1190.
*The p_H in the "Prostaxia" Reaction. R. Fischer.—p. 1192.
Test for Protein Traces. P. Lecomte du Noüy.—p. 1194.
Vaccination with Ether-Virus Against Rabies. Remlinger.—p. 1195.
*Passage of Trypanosoma Through Tissues. E. Iwanow.—p. 1198.
Fibrinogen in Cerebrospinal Hyperalbuminosis. Perisson et al.—p. 1201.
Structure of Enamel. E. Retterer.—p. 1203.
*Blood Platelets and Shock. C. Klecki and C. Pelczar.—p. 1206.
*Procedure for Glycuronic Acid Test. M. Brulé et al.—p. 1216.
*Thyroid Test. G. Laroche and Wolff.—p. 1218.
*Prothrombin in Hemophilia. R. Feissly.—p. 1220.
*Action of Splenectomy on Cancer. N. Dobrovolskaia-Zavadskaia and N. Samssonow.—p. 1222.
*Irradiation and Cancer Receptivity. Lacassagne and Samssonow.—p. 1224.
Feminization with Ovarian Grafting. V. Pettinari.—p. 1228.
Heterologous Cancer Grafts. J. Gheorghiu.—p. 1232.
Rôle of Connective Tissues in Tumors. M. Caudière.—p. 1235.
Sulphur in Mercury Poisoning. S. F. Gomes da Costa.—p. 1241.
*Posterior Lobe of Pituitary. A. Celestino da Costa.—p. 1246.
Chromatolysis in Graafian Follicle. A. L. Salazar.—p. 1247.
Placenta and Group Agglutination. Hirszfeld and Zborowski.—p. 1253.
Micromethod in Diphtheria. Z. Milinska-Szwojnicka.—p. 1256.

Latent Glandular Hermaphrodism.—Lipschütz, Perli and Svikul's experiments in guinea-pigs showed that sensitizing products from cell autolysis, owing to abnormal spermatogenesis, may attenuate or check the inhibiting action of the testicle on the female hormone. A latent glandular hermaphrodism may thus become evident, due to the passage of these sensitizing substances into the circulation.

Prognosis with a Modified Form of Typhoid Bacillus.—Blood cultures in Ramsine's two cases with the clinical picture of typhoid fever revealed the presence of a modified typhoid bacillus, resembling rather the colon bacillus. The bacillus was agglutinated by the patient's serum at 1 to 100, and the typhoid bacillus at 1 to 1,000. Evidently the bacillus represents a retrogressive transformation of the typhoid bacillus, occurring with changes in the immunization property of the organism. The prognosis with this form of typhoid bacillus is grave.

Klossiella Muris as Factor of General Infection.—Bonne found this protozoon in mice treated with tar for experimental cancer. He assumes that the schizont form of development of the protozoon occurs in the endothelium of certain organs (lung, spleen, kidney), and the sporont form in the renal tubules. No connection could be established between the presence of the protozoon and cancer.

Changes of p_H and Prostaxia Reaction in Serum.—Fischer recalls his method for serum diagnosis of cancer based on the fact that gelatin enforces, or stabilizes the protein dispersion (condition of prostaxia) in normal serum, while it destabilizes this phase in cancer cases, causing more pronounced flocculation. His further research has shown that the reaction depends on the hydrogen ion concentration in the gelatin serum mixture. With an alkaline gelatin (p_H 8.35) the reaction is always negative, the serum being stabilized. With acid gelatin (p_H 5.5) the serums are destabilized, and the reaction becomes positive. With p_H of 5.5 to 7.4 (the latter being the p_H of normal blood), the reaction is the reverse in normal serum and in cancer serum.

Trypanosoma Equiperdum Does Not Pass Through Sound Tissue.—Iwanow introduced the trypanosoma into the vagina of mice and of rabbits; also in the eyes of mice. The results indicated that the parasite does not pass through a mucous membrane free from erosions, and therefore infection does not occur.

Blood Platelets in Shock.—Klecki and Pelczar's research on rabbits and guinea-pigs showed that the blood platelets do not play an important rôle in anaphylactic shock. Destruction of the platelets can at most only enhance peristalsis, lower the refractometric index, and produce leukopenia in alimentary shock. The experiments demonstrated the fever-producing action of the platelet substances.

Sources of Error in Glycuronic Acid Test.—Brulé, Garban and Amer describe a procedure aiming to avoid mistakes with Tollen's reaction for ascertaining the presence of glycuronic acid in the urine. They affirm that while other methods showed absence of glycuronic acid, with their technic the reaction was always positive in pathologic urines, especially in cases of grave liver disease. They list the sources of error.

Value of Thyroid Extract Test.—Laroche and Wolff applied the thyroid extract test in twenty-one persons. Their conclusion is that the reaction is as valuable in hyperexcitability of the vagus, as Goetsch's reaction in hyperexcitability of the sympathetic. A weakly positive test in hypothyroidism, and a negative test in certain cases of hyperthyroidism confirm that the diagnosis of hyperthyroidism cannot be based with certainty on these two reactions. The test had been devised by Parisot and Richard: Retardation of the pulse by 10-30 beats per minute after injection of a large dose of thyroid extract was claimed as a sign of hyperthyroidism.

Speed of Transformation of Prothrombin into Thrombin in Hemophiliacs.—Feissly states that the transformation of prothrombin into thrombin in the plasma was evident thirty minutes after blood transfusion while before transfusion it required two or three hours. This acceleration of the formation of thrombin in the plasma of hemophiliacs after transfusion of total blood or of citrated plasma, observed in vitro, explains the changes in blood coagulation from transfusion.

Influence of Splenectomy on Experimental Cancer.—Removal of the spleen in rats and mice did not seem to increase the receptivity of the animals to cancer grafts. The natural immunity in certain animals against the tumor did not vanish immediately after the splenectomy, but possibly disappeared with repeated grafting. The results, Dobrovolskaia-Zavadskaia and Samssonow say, were identical with grafts of epithelioma and of sarcoma.

Effect of Roentgen Rays on Local Receptivity to Cancer.—Preliminary irradiation of the region, where cancer was to be implanted afterward, did not influence the development of the tumor, while the grafts irradiated before implantation did not take.

The Posterior Lobe of the Pituitary.—Celestino da Costa ascribes the importance of the posterior lobe of the pituitary to a transient deposit in it of the colloid product elaborated in the intermediary lobe, passing afterward into the ventricle.

Journal de Chirurgie, Paris

25: 385-512 (April) 1925

*Postoperative Peptic Ulcers. X. Delore and J. Creyssel.—p. 385.
Fracture of the Condyles of the Tibia. Brocq and Panis.—p. 417.

Peptic Ulcer.—Delore and Creyssel analyze their experience with twenty-five instances of postoperative peptic ulcer in twenty-one patients, some having had more than one. The recurrence was in the stomach in two or three of the cases. It alternated with the jejunum in some, showing that the same factors were at work in both. The primary ulcer was in the lesser curvature or the duodenum in a few cases, and the nature of the operation seemed immaterial for the development of the peptic ulcer. The soil seems to be exclusively responsible, they say, a kind of *maladie ulcéreuse* which yet does not seem to be a general diathesis. One case is suggestive; the peptic ulcers had developed in turn after three separate resections, but the patient returned for an operation at the very first hint of the fourth recurrence, and the cure has been permanent since this. Resection of the peptic ulcer with restoration of the passage was done in twenty-three of the twenty-five, and there was no fatality.

Journal de Médecine de Bordeaux

102: 357-400 (May 10) 1925

Medical Science as It Is Taught. R. Cruchet.—p. 357.
*Disinfection of Contaminated Books. J. Touchais.—p. 359.
Case of Recurrent Measles. J. Vergely.—p. 370.
Case of Meningococcus-Pneumococcus Meningitis. Sabrazès et al.—p. 371.

Disinfection of Tubercle Bacilli in Books.—Touchais' experiments in guinea-pigs showed that tubercle bacilli from books were still virulent 135 days after contamination. This

occurred notwithstanding the action of light and desiccation in the show window. Disinfection of books with fumes and steam of formaldehyd and water, at a temperature of 75 or 95 C. during one hour, may give excellent results. The books are not damaged, since paper tolerates 180 C. and the binding 95 C. This method has been used with satisfactory results at Nantes for many years.

Journal de Médecine de Lyon

6: 227-262 (April 20) 1925

*Use of Thorium in Gouty Rheumatism. Roque and Chevallier.—p. 227.
Joint Lesions in Leprosy. V. Cordier and J. Dechaume.—p. 235.
Nephritis of Rheumatic Origin. J. Chalier and P. Delore.—p. 243.
Acute Rheumatism and Tuberculosis. Nové-Josserand.—p. 251.
Rheumatism with Dysentery. L. Morenas.—p. 255.
*Salicylate and Acidosis. P. Delore—p. 259.

Inhalations of Thorium Emanation in Treatment of Rheumatism.—Roque and Chevallier affirm that the inhalations may be effectual in the initial stage of chronic rheumatism, with periarticular lesions and bone changes presenting only urate infiltrations. In cases with exostoses, intramuscular injections of thorium X are preferred. Thorium emanation is contraindicated in acute forms of the disease on account of its congestion-inducing action. In the subacute form, the thorium does not exert any effect. Thorium proved successful in certain patients with rheumatism of ten or fifteen years' standing, refractory to all other treatment. Three of their patients took inhalations daily of from 70 to 90 units, in one, three or four sittings, continued from fifteen to thirty days.

Prevention of Acidosis with Sodium Salicylate.—Delore emphasizes that complications from the drug are due to a condition of acidosis, and may be avoided by adding a double dose of sodium bicarbonate, and by giving repeated but small doses of the salicylate.

Journal des Praticiens, Paris

39: 273-288 (April 25) 1925

*Treatment of Congenital Syphilis. Marfan.—p. 273.
Duodenal Ulcer. A. Huguier.—p. 277. Cont'n.
Meningeal Form of Endocarditis. N. Fiessinger.—p. 282.

Treatment of Congenital Syphilis in the New-Born.—Marfan applies mercurial ointment to infants with congenital syphilis. Otherwise he prescribes a solution of mercury lactate or gray powder by mouth. In infants above 1 year, a solution of mercuric biniodid is used in subcutaneous injections. Intravenous injections of mercury cyanid are valuable in cases with complications in the eyes.

Lyon Chirurgical

22: 129-292 (April) 1925

*Conservation of Anal Sphincter. Villard and Ricard.—p. 129.
*Resection of Peripheral Nerves. Cottalorda and Filippini.—p. 161.
Surgical Treatment of Sclerocystic Ovaritis. G. Cotte.—p. 173.
Tumor on Perineum of New-Born Infant. J. F. Martin et al.—p. 190.
*Exposure of Rami Communicantes. Leriche and Wertheimer.—p. 200.

Conservation of Sphincter in Removing the Rectum.—When the lower limit of the cancer can be just reached with the tip of the finger, and the Douglas pouch has been invaded, the abdomino-transanal amputation technic described may be the ideal operation. It does not even inevitably require an artificial anus. Of the ten patients operated on by this technic, two are still living in good health and continent, more than three years since the operation, and two have died from intercurrent disease. The outcome is not known in one case.

Resection of Peripheral Nerves.—Cottalorda and Filippini compare the ultimate outcome in treatment of trophic lesions with periarterial sympathectomy (10 cases) or the Moreschi combined method (5) or simple Moreschi resection of nerves (5). Each method was followed by great improvement, and varicose ulcers and mal perforant were usually permanently cured. Moreschi's incision, entirely around the leg, cuts down to the aponeurosis at the garter point, and the accessible nerve, the internal saphenous is resected for 3 cm. at least. This acts on both the vessels and the peripheral innervation, and was constantly successful. The operation on the nerve or nerves, as in this case, may answer the purpose alone, especially for simple ulcer; periarterial sympathectomy seems preferable for varicose ulcers. If these procedures fail of permanent benefit, it is useless to repeat them when a "dead point" has been reached. Senile gangrene was only transiently benefited, if at all.

Access to Rami Communicantes.—Leriche and Wertheimer confirm the feasibility and harmlessness of Gaza's incision, 3 cm. from the line of the spinous processes, extending from the seventh to the twelfth dorsal vertebrae. Guided by the posterior branches of the intercostal nerves, direct access to the rami is thus obtained, and severing them breaks the reflex arc of vasomotor and enteromotor neuroses in the viscera. For the stomach, the dorsal seventh, eighth and possibly ninth; for the liver and gallbladder, the dorsal ninth and tenth are the nerves involved. They mention Royle's recent report of the cure of rebellious constipation by sympathetic ramisection in the lumbar region. Ramisection seems promising also in treatment of dilatation of the esophagus from spasm of the cardia or diaphragm.

Lyon Médical

135: 449-478 (April 12) 1925

*Ramisection. R. Leriche.—p. 449.
Arteries Resisting the Pressure of the Sphygmomanometer. A. Dumas et al.—p. 452.

Section of Rami Communicantes.—Leriche obtained surprising results from severing the anterior communicating branches of the brachial plexus in a man with intense pains from a forearm stump. The pains disappeared completely and permanently the next day. The same operation succeeded in two other cases of otherwise uncontrollable painful affections.

135: 479-510 (April 19) 1925

*Syphilis Contracted by Infant During Birth. Bonnet.—p. 479.

Syphilis Transmitted from Mother to Infant During Delivery.—Bonnet concludes that this rare event may occur with childbirth the tenth or twelfth day after appearance of the primary chancre, when the organism of the mother, and consequently that of the baby is not yet syphilized or immunized. In the "passage case" described, the infant had two chancres on the vertex of the skull.

Marseille Médical

62: 533-580 (April 5) 1925

From Pneumothorax to Thoracoplasty. L. Billon.—p. 533.
*Huntington's Chorea in Brother and Sister. H. Roger et al.—p. 552.
Cerebral Abscess from Abscess of Lung. Boinet et al.—p. 559.
Nephrectomy for Old Tuberculosis. Chauvin and Emperaire.—p. 562.
Rupture of Silent Aortic Aneurysm. Boinet et al.—p. 568.

Heredity in Huntington's Chorea.—Investigation into two cases observed by Roger, Reboul-Lachaux and Antonin showed that the disease had occurred in three successive generations, and that defects of character appeared early in the descendants of the fourth generation who have not yet reached the age of the chorea. Physical and mental impairment as well as signs of degeneracy are apparent in the children of the fifth generation. The disease appeared at the same age (from 53 to 55) in six members of this family, and was accompanied in one of them with an actual (not simulated) suicidal reaction.

Presse Médicale, Paris

33: 657-672 (May 20) 1925

*Substances Acting on Vegetative Nervous System. Daniélopolu.—p. 657.
*Purpura Form of Meningococcemia. B. le Bourdellès.—p. 660.
Mineral Waters as a Form of Shock Treatment. A. Lıacre.—p. 661.
A Medicosocial Service in a Factory. G. Poix.—p. 667.

Drugs Acting on the Vegetative Nervous System.—Daniélopolu emphasizes that in treatment with these drugs the action on the parasympathetic nerves as well as on the sympathetic should be considered, also the condition of the tonus of each. He reiterates further that diseased organs respond entirely differently from sound organs. His research proved that eserin first inhibits the motor functioning of the stomach for about two hours, and then exaggerates it. In cases with slightly impaired contracting power of the myocardium, digitalis improves conditions; in advanced myocardiac insufficiency, the effect from digitalis is the reverse. The irritability of the myocardium increases, the arrhythmia

is intensified, and paroxysms of tachycardia may occur. Consequently it weakens the contractions, augments the excitability and the dilatation of the heart, inducing phenomena of weakening function—the reverse of the "normal" action of digitalis. Contrary to the current opinion, epinephrin, given by mouth, frequently increases the contractility of the stomach. This is explained by the fact that a large part of the drug is neutralized by the gastric juice, while the intact small remnant may exert an action on the parasympathetic. Small doses of atropin maintain exaggerated motor functioning of the stomach, since they act exclusively on the parasympathetic. Only a daily dose of 2 or 3 mg., with a first dose of 0.75 or 1 mg., inhibits the contractions of the stomach. This once secured, it can be maintained with smaller doses.

Infectious Meningococcus Purpura. — Examination of twenty-six cases of purpura revealed the presence of *Bacillus melitensis* in one instance, and of meningococci in all the others. In eight cases there were no meningeal manifestations. Good results were obtained with antimeningococcic serum.

33: 673-688 (May 23) 1925

French Surgery in the Eighteenth Century. P. Lecène.—p. 673.
*Dentigerous Cyst and Adamantinoma. A. and J. B. Morlet.—p. 677.
Anemia with Sickle-Shaped Blood Corpuscles. P. L. Marie.—p. 678.
Experimental Surgery in the United States. G. Loewy.—p. 683.

Dentigerous Cyst and Adamantinoma.—Morlet and Morlet describe a case of a tumor on the lower jaw which presented all the intermediate stages between a cyst and adamantinoma. The case, they say, confirms the common origin of the two affections.

33: 689-712 (May 27) 1925

Charcot Memorial Number.—pp. 689-712.

33: 713-728 (May 30) 1925

Physiology of Gallbladder. M. Chiray and I. Pavel.—p. 713.
*Albuminuria with Syphilis. C. Laurent.—p. 716.
Malaria Treatment in General Paralysis. P. Pagniez.—p. 717.
Prophylaxis of Leprosy in Indo-China. S. Abbattucci.—p. 723.

The Curable Albuminuria in Syphilis.—Laurent calls attention to a form of nephritis in syphilis, revealed only by albuminuria, while all other signs are absent. A slight uremia was noted in one among fifteen patients observed. The amount of albumin reached 1.2 and 1.5 per cent.; the duration of the albuminuria varied from two and a half months to seven years. In one case the affection disappeared under one series of arsenical treatment, but in most of the patients this occurred only with three to five series. No recurrences of albuminuria were observed for up to two years and more.

33: 729-744 (June 3) 1925

Gold Treatment in Tuberculosis. G. Poix.—p. 729.
Treatment of Vein Diseases. R. Hugel and G. Delater.—p. 731.
*Periarterial Sympathectomy. L. Desgouttes and A. Ricard.—p. 734.

Technic for Periarterial Sympathectomy.—Desgouttes and Ricard detail their method with which they assert the decortication of the artery is easy and complete. They decorticate the accompanying vein first.

Revue Française d'Endocrinologie, Paris

3: 89-144 (April) 1925

*Sympathetic System and Metabolism. A. Oswald.—p. 89.
*Ovarian Hormones. R. Courrier.—p. 94.
*Rôle of Suprarenal Cortex. R. Porak.—p. 102.
Asthma and Ovarian Disturbances. Claude and Saleur.—p. 115.
*Pituitary Extract and the Metabolism. D. M. Rossiysky.—p. 124.

Rôle of Nervous System in Metabolism.—Oswald emphasizes that the action of thyroid extract depends on the condition of the nervous, and especially of the sympathetic system. He thinks that the secretory products of endocrine glands stimulate the nervous system, which directs the metabolism. The activity of an endocrine gland itself is under the influence of the nervous system.

Action of Ovarian Hormones.—Courrier made his research with the follicular hormone of the ovary. Injection of the hormone in the newly born induced proliferation of the vaginal epithelium. The injection in a gravid guinea-pig induced the passage of the hormone through the placenta, proved by proliferation of the vaginal epithelium in the young. Two castrated guinea-pigs were injected with 1 c.c. of follicle fluid, one intravaginally, the other subcutaneously. The reaction of the vaginal epithelium was more pronounced in the first, tending, he says, to show the action of the hormone on the cells, without interference of the nervous system. Courrier adds that the ovary secretes besides the follicular hormone also a lutein hormone, playing an important rôle in pregnancy.

Significance of Cortical Substance of Suprarenal Gland.—A gradual destruction of the suprarenal glands in rabbits was followed by an exaggerated development of the accessory suprarenal glands, evidently supplementing the impaired function and thus allowing the survival of the animal. Since the accessory glands consist of cortical substance, Porak believes that the latter is vitally important in the functioning of the gland. Suprarenal insufficiency entails changes in the tonus of the vegetative system.

Action of the Pituitary on the Metabolism.—Rossiysky states that extract of the pituitary infundibulum provokes in animals a considerable gain of weight and an increased retention in the organism of nitrogen, chlorids, sulphur, phosphorus and especially of calcium, magnesium and sodium. The extract may be efficient in diseases with an augmented elimination of these elements.

Revue Médicale de la Suisse Romande, Geneva

45: 321-384 (May 25) 1925

*Muscular Rheumatism. P. Demiéville.—p. 321.
Termination of Attack in Paroxysmal Tachycardia. Bickel.—p. 348.
Echinococcosis in Switzerland. G. Dardel.—p. 352.
Suspected Mushroom Poisoning. M. Roch.—p. 359.
Tetanus of the New-Born Cured by Tetanus Antiserum. Vodoz.—p. 360.

Muscular Rheumatism.—Demiéville says that in the vast majority of cases a predilection for a few muscles in the trunk and the extremities is evident. In diagnosis, he tests the local sensitiveness by pressure and pinching; pain in a limited, fixed area is important. He has had good results in sciatica by the intramuscular introduction of hot physiologic solution containing 2 per cent. of sodium salicylate. This is also recommended in treatment of rheumatism of the large muscles of the trunk and particularly in the common, often stubborn, cases in the gluteus medius muscle, both in the acute and notably in the chronic form. Two or three injections, four at the most, at two day intervals, are usually sufficient; the dose is 5 to 7 c.c. of the solution to begin with, then 10 to 12 c.c. In certain extremely painful localizations in the gluteus medius he injects 4 to 7 c.c. at each end of the muscle.

Scalpel, Brussels

78: 501-532 (May 30) 1925

*Sudden Death from Puncture of Pleura. P. Fonteyne.—p. 501.
Late Puerperal Infection from Retention of Urine. Cantineaux.—p. 507.

Sudden Death from Puncture of Pleura.—Fonteyne reports the case history of a boy, aged 12, with pleurisy of the left lung with profuse effusion and sudden collapse and death after the third puncture of the pleura. He discusses the possible embolism and reflex dangers in intervention involving the pleura. The fatality occurred before any fluid had been aspirated. He now makes a practice of injecting a local anesthetic to interrupt the reflex arc before puncturing.

Grèce Médicale, Athens

27: 5-12 (April) 1925

*Intracardiac Injection of Epinephrin. T. Astériadés.—p. 9.
Epidemic of Water-Borne Typhoid. G. S. Joannidès.—p. 10.
Luminal in Epilepsy. B. Conos.—p. 11.
*Access to Abscess in Liver. A. Petridis.—p. 13.

Intracardiac Injection in Chloroform Syncope.—In the first of Astériadés' three cases the injection was made at once when the syncope developed, at a herniotomy operation, and the young man recovered. In the two other cases, eight and ten minutes had elapsed, and the heart was only transiently revived.

Petridis' Mode of Access to Abscess in the Liver.—The polypleurodiaphragmatotomy described requires resection of three or four ribs, but the extensive access more than justifies this. The entire convex aspect of the liver and its posterior margin near the spine are thus open to ample inspection and treatment of the usually multiple tropical abscesses.

Archivio Italiano di Chirurgia, Bologna

11: 109-228 (March) 1925

*Transplants of Living Bone. L. Lazzarini.—p. 109.
*Pathogenesis of Jejunal Ulcer. S. Gussio.—p. 139.
Tuberculoma of Spinal Dura. A. Malerba.—p. 191.
*Treatment of Hydrocele. A. Vecchi.—p. 200.
Unreliability of Wildbolz Urine Test. Roello and Monaci.—p. 205.
Obstruction of Intestine from Pedunculated Cyst in Broad Ligament. G. Regoli.—p. 217.

Transplants of Living Bones.—Lazzarini gives the details of bone grafting experiments on twenty-nine rabbits. When the bone was taken from the same animal and transplanted at once, it healed in place and produced new bone when implanted in periosteum or bone tissue. The destructive phenomena prevailed at first over the reconstructive when the graft was from another animal of the same species, and the biologic processes were much more sluggish, but the ultimate outcome was practically the same.

Pathogenesis of Peptic Ulcer.—Gussio cut a wedge across the center of the stomach, and made a separate gastro-enterostomy in each of the resulting halves of the stomach in thirty-eight dogs. Signs of irritation and erosion were always far more pronounced in the gastro-enterostomy in the upper, cardial half than in that of the lower half of the stomach, but no difference was apparent in regard to the opening being nearer or farther away from the duodenum or whether the pylorus was permeable or not. The preponderantly acid secretion of the cardial portion was always the principal cause of the development of the jejunal ulcer. The acidity may be only relative, in comparison to the defensive forces, but the data presented apparently establish that it is the acidity and not the proteolytic power of the gastric juice which determines the ulcer in the first place.

Treatment of Hydrocele.—Vecchi incises the scrotum and vaginalis at the lowest point, for 4-5 cm., and after release of the fluid packs the entire cavity in the vaginalis with a strip of gauze. The packing is removed in two or three days, and in the thirty-two patients treated in this way there has never been any recurrence. The measure proved effectual also in four cases of spermatocele, bilateral in one.

Riforma Medica, Naples

41: 313-336 (April 6) 1925

Apparatus for Measuring Capillary Pressure. V. Ariola.—p. 314.
*Ultraviolet Rays for Venereal Adenitis. Tomasone.—p. 316.
Displacement of Pleura with Pneumothorax. E. Fiori.—p. 317.
The Reticulo-Endothelial System. G. Pianese.—p. 320.
Diagnosis of Fracture of the Skull. M. Loreti.—p. 321.

The Ultraviolet Rays in Treatment of Venereal Adenitis.—Tomasone reports encouraging results from exposure of enlarged inguinal glands to the quartz lamp. In six cases in which several glands were enlarged, to the size of a pigeon's egg or hen's egg, all painful and two suppurating, all retrogressed completely in from seven to ten days of daily exposures. In three other cases the healing did not begin until after the pus had been released; then it was complete in from four to seven days.

Prensa Médica Argentina, Buenos Aires

11: 1041-1068 (April 20) 1925

Comparative Study of Kidney Function Tests. Waldorp.—p. 1041.
The Campaign Against Venereal Disease. Carbonell.—p. 1053.
*The Hydrogen Ion Content of the Urine. A. H. Costemalle.—p. 1055.
*The Cholesterol Ratio in Tumors. A. H. Roffo.—p. 1060.

Hydrogen Ion Content of the Urine.—Costemalle regards the p_H of the urine as the only reliable index of the urine reaction. For the prognosis in acidosis, determination of the alkali reserve is more instructive.

Cholesterol Content of Cancer Tissue.—Roffo has found sometimes three times more cholesterol in tumor tissue than in the rest of the animal. Cholesterol takes up water readily, and the water content of the tumor increases proportionately.

Revista de Medicina y Cirugía, Caracas

8: 43-67 (Jan.) 1925

Case of Shoulder Presentation. L. E. Montilla.—p. 43.
Case of Parkinson's Disease. N. Rivera.—p. 46.
*Ringworm of Feline Origin. M. Vegas.—p. 49.
Treatment of Cancer. J. Iturbe.—p. 53.
*Pregnancy in Exophthalmic Goiter. Gutiérrez Alfaro.—p. 55.
Iodized Oil in Diagnosis of Pressure on Spinal Cord. Izquierdo.—p. 61.
A Visit to the Finsen Light Institute. R. Medina Jiménez.—p. 62.

Ringworm at Caracas.—Martin Vegas comments on the rarity of tinea at Caracas, probably from the small numbers of Russians and other races in whom ringworm is more common. He never encountered a case until recently, and the apparently identical microphyte was cultivated from both the child and the cat in the family.

Pregnancy in Exophthalmic Goiter.—The pregnancy developed apparently normally to the eighth month, when premature delivery occurred, without mishap except a tardy secondary hemorrhage. The fetus was apparently normal, but the gestation had an aggravating influence on the exophthalmic goiter. Severe arrhythmia developed and proved fatal the fourth day after delivery.

Revista Médica Latino-Americana, Buenos Aires

10: 641-778 (March) 1925

*Emergency Obstetric Hysterectomy. J. B. González.—p. 641.
*Endemic Pinta of Tropical America. A. Peña Chavarría and P. G. Shipley.—p. 648.
Treatment of Ankylosis of the Arm. E. M. Olivieri.—p. 722.
Implant Treatment of Pott's Disease. N. Tagliavacche.—p. 725.

Emergency Obstetric Laparotomy.—González impresses on the practitioner the advantages of the Porro technic in these conditions, drawing the stump of the uterus outside, fastening it to the abdominal wall.

Mal de los Pintos.—This illustrated monograph on this itching, pigmented and tenacious dermatomycosis of tropical America and certain points in Africa, was awarded a prize by the national Academia de Medicina of Colombia. Among its local names are *carato, pinta* and *karatefleck*. The best results in treatment have been obtained with arsenicals and mercurial ointment. Five kinds of fungi were cultivated from the lesions, responsible respectively for the white, violet, black, red or blue patches of pigmentation.

Semana Médica, Buenos Aires

1: 841-896 (April 16) 1925

*Nightmares, Somnambulism, Etc., in Children. J. M. Obarrio.—p. 841.
Giant Sigmoidoscope. R. Finochietto.—p. 853.
Training to Detect Substandard Children. T. A. Tonina.—p. 854.
Incomplete Form of Fatal Epidemic Meningitis in Three Infants. B. Soria.—p. 871.
Calcium-Parathyroid Treatment of Intestinal Tuberculosis. Curti.—p. 874.
Dental Foci of Infection. N. Etcheparebordа.—p. 875.
Abdomen Traversed by Bullet. Spontaneous Recovery. M. Laparó.—p. 882.
Capillaroscopy in Diabetes. A. Lacroze.—p. 883.
Present Conception of Angina Pectoris. F. Sanz Ruiz.—p. 885.
Radioactivity of the Cacheuta Mineral Waters. N. M. Sales.—p. 890.

Oneiric Disturbances in Children.—Obarrio has found the liver enlarged in nearly every child presenting pavor nocturnus or somnambulism, and he thinks that lumbar puncture might often reveal a meningeal reaction. When the digestion reaches the point of the passage of the food elements through the liver, and this organ is functionally incapable, there is a toxic action on the brain. The hemoclastic crisis was invariably positive in his cases. The pseudoconvulsions of oneiric delirium may deceptively suggest an epileptic seizure, except that on waking the child, the symptoms are at once arrested. In treatment, besides regulating the diet, he gives with two meals a glass of a solution of 10 gm. of sodium sulphate with 5 gm. of sodium phosphate and 5 gm. of sodium bicarbonate in a liter of water. All his patients were cured. In one case the disturbances were traced to the alcohol in a tonic prescribed by a physician.

Archiv für klinische Chirurgie, Berlin

135: 495-787 (April 30) 1925

*Gastric and Duodenal Ulcer. J. Petermann.—p. 495.
Duplication of the Upper Jaw. E. Bumm.—p. 506.
*Spastic Intestinal Occlusion. H. Reimer.—p. 520.
Operation for Abdominal Contusions. R. Demel.—p. 542.
Roentgentherapy of Surgical Affections. W. Baensch.—p. 567.
Sarcoma of the Pancreas. H. Marxer.—p. 606.
*Healing of Gastro-Enterostomy Wound. A. Nemiloff.—p. 629.
*Late Deaths After Chloroform Anesthesia. Reichel.—p. 640.
*Resection of the Stomach. H. Finsterer.—p. 650.

Schömann's Extension Clamp. O. Frisch.—p. 668.
*Pathology and Therapy of Ileus. N. M. Sawkow.—p. 675.
Diverticula in Esophagus. Oehlecker.—p. 699.
Deformity of Patella After Fracture. H. Kästner.—p. 714.
Malignant Tumors of Differing Kinds at Intervals in Same Patient. W. Rieder.—p. 719.
Micrognathia. E. Seifert.—p. 726.
Pathology and Therapy of Erysipeloid. F. Arnholz.—p. 736.
*Infections in Relation to Goiter. A. Troell.—p. 751.
*Eye Symptoms with Goiter. A. Troell.—p. 755.
*Goiter and Vagotonia. V. Weiss.—p. 763.
Reconstruction of Lower Lip. Woloschinow.—p. 770.
Internal Incarceration of Intestine in Slit in Mesentery. I. M. Talmann. —p. 776.
Supernumerary Gallbladder. A. W. Wischnewsky.—p. 779.
Hemorrhagic Infarct in Wall of Gallbladder with Gallstones. Esau.—p. 782.

Surgical Treatment of Gastric and Duodenal Ulcer.—Petermann's report covers 443 cases, with a mortality of 5 per cent. after gastro-enterostomy, 7 per cent. after extensive resection. The majority of deaths occurred in his earliest period. On failure of internal therapy, he regards extensive resection as the best procedure. When this is contraindicated by age or general condition, and in inoperable ulcers, retrocolic gastro-enterostomy is the preferred method.

Spastic Intestinal Occlusion in Intraperitoneal Hemorrhage.—Reimer describes three cases after abdominal contusion, with toxic injury of the vegetative nervous system as the probable cause. Abnormal instability of the vegetative system was evident in all the cases. The general condition surprisingly little affected in spastic ileus, is the most important element in differential diagnosis in this disturbance. Conservative treatment may be employed in the mild cases; in the graver forms, early laparotomy, possibly with irrigation, is essential.

Healing in Gastro-Enterostomy Wound.—Nemiloff says that this is by second intention. Pronounced inflammatory and degenerative processes develop in the adjoining tissues and only in the deepest layers of the adjacent mucosa do living epithelial cells and parts of gland ducts persist, from which later the mucosa slowly regenerates. The other tissue layers of the wall, especially the musculature, partially degenerate at the junction, without regeneration, and scar tissue is formed. Silk sutures are mostly cast off in the stomach interior and materially disturb healing, hence the less they are used, the more favorable the conditions for healing.

Late Deaths After Chloroform Anesthesia.—Reichel says that in the 160 to 180 cases described in the literature, a characteristic symptom-complex followed the anesthesia, with death almost without exception in one and a half to five days. Necropsy always revealed acute yellow atrophy of the liver as the cause of death. The same picture and anatomic changes can be produced in animals by experimental chloroform intoxication. A predisposition is given by preceding affections, especially infections in the abdominal cavity, which in themselves favor fatty degeneration of the liver. The fatalities were most often observed after appendicitis operations, in acute cases. While the results are infrequent in proportion to the frequency of chloroform anesthesia, a number in a certain brief period suggests chloroform disintegration products or impure chloroform as the real cause of the intoxication.

Stomach Resection After Billroth I and Haberer's Modification.—Finsterer employs the original Billroth I only with very wide duodenum, otherwise Haberer's modification, which in addition to the safer suture, excludes primary stenosis with continued vomiting and secondary stenosis. In elderly and debilitated patients, because of the danger of suture insufficiency from defective adhesion, he prefers the modified Billroth II; likewise with ulcer invading the pancreas. In patients exposed to infection, he advises direct union of the stomach and duodenum, as this can prevent recurrence, without causing complete anacidity. Experience shows increased danger from typhoid in subacid or completely anacid states.

Pathology and Therapy of Ileus.—Sawkow never uses atropin injection, only the high enema. If this does not help, he performs a laparotomy. High enema alone was efficacious only in cases with fecal impaction and in some partial ileus cases. In clear cases of ileus, he advocates early operation. The prophylactic profuse infusion of saline during operation and the first hours afterward is, in his opinion, absolutely essential. For postoperative stimulation of the paralyzed intestine he injects strychnin subcutaneously. He states definitely that this measure has saved patients who for several days after detorsion had no fecal movement. Glycerin and particularly oil enemas may be helpful in intensive stimulation. The administration of heart stimulants he considers a matter of course.

Goiter.—In support of the view that exophthalmic goiter may be of infectious nature, Troell affirms that 25 per cent. of 165 cases of diffuse exophthalmic goiter developed directly after an acute infection, and that round-cell infiltration was present in 90 per cent. of all the cases. He suggests that the goiter may exert traction on the right cervical sympathetic and consequently paralyze it, causing the ocular symptoms. In two cases described, asymmetric eye symptoms were noted immediately after bilateral resection of the goiter.

Goiter and Vagotonia.—Weiss says that vagotonia was present in eight out of thirty-two goiter patients. In the four with degenerative goiter, marked vagotonia and sympathetic hypotonia were noted. The histologic findings in a later case operated for adenoma of the thyroid, revealed malignant degeneration (follicular adenocarcinoma) with the vagotonia.

Dermatologische Zeitschrift, Berlin

44: 1-78 (May) 1925

Action of Stovarsol in Experimental Syphilis. W. A. Collier and E Evers.—p. 1.
Treatment of Psoriasis. P. Weckesser.—p. 17.
Metastatic Gonococcus Arthritis After Trauma. M. Schubert.—p. 20.
Cancer Developing on Lupus Erythematodes. B. Dicke.—p. 24.

Deutsche Zeitschrift für Chirurgie, Leipzig

190: 137-418 (May) 1925

*Exclusion of Thoracic Aorta. M. Lebsche.—p. 137.
*The Pericardium and the Heart Action. W. Felix.—p. 178.
*Fate After Suture of Heart. E. Hesse.—p. 239.
*Treatment of Perforated Gastric Ulcer. W. F. Suermondt.—p. 290.
Origin of Diverticulum in Hernial Sac. Hilgenreiner.—p. 302.
Hernial Sac Plastic Inguinal Herniotomy. Lieschied.—p. 307.
*Operative Treatment of Ascarid Foci in Liver. Erb.—p. 316.
Course of the Sensory Nerves in the Vessels of the Extremities. V. Dumpert and K. Flick.—p. 329.
*Nail and Wire Extension for Fractures. H. Koch.—p. 333.
Pseudarthrosis in Neck of Femur. M. Richard.—p. 344.
Difficult Reduction of Dislocation of Hip. J. Fraenkel.—p. 359.
Hyperplasia of Lymphatic Tissue Simulating Polyposis in Large Intestine. H. Lehmann.—p. 391.
Mechanism of Isolated Dislocation of Semilunar Bone. Brandt.—p. 396.
Coxa Valga Luxans. B. Cohn.—p. 399.

Exclusion of the Aorta.—Lebsche's colored plates show the steps of the experiments on dogs to divert the blood stream directly into the descending aorta from the heart. A T tube in the descending aorta and a cannula passed into the left ventricle through the auricle were connected by a U tube. Several of the animals survived after the ascending aorta had thus been shut off from the circulation for six to eight minutes. In one experiment the heart continued to beat regularly with the blood thus diverted for forty minutes. Then the left lung, which had been pushed out of the way with gauze sponges, was released, and the heart action altered at once and gradually failed, with death the fifty-fourth minute after the circulation in the ascending aorta had been shut off. Even the seven minutes' exclusion of the ascending aorta allowed by this technic is not enough for a correct circular suture after resection. Hence some prosthesis substitute for the vessel is indispensable.

The Pericardium and the Heart Action.—Felix induced valvular and other lesions in dogs' hearts and then tried to influence them by modifying the pericardium. The function of the latter is predominantly mechanical. Making it smaller hampers the heart action, while enlarging it had a favorable influence on mitral and tricuspid valvular defects, but not on aortic or pulmonary defects as there is no compensatory dilatation with the latter as with the former.

Ultimate Outcome of Suture of the Heart.—Hesse compares his personal twelve cases of long supervision after suture of the heart with 107 on record. The interval since ranged from two months to eighteen years. The earning capacity is now unimpaired in 80.1 per cent., and only 1.7 per

cent. are disabled. The ultimate outcome is excellent and the general condition good even in nine patients who had had purulent pericarditis. Disturbance in conduction after the suture may correct itself in time.

Treatment of Perforated Gastric Ulcer.—Suermondt turns in and sutures the perforation opening, and relates that of twenty-seven recently reexamined after such treatment all but five have been free from all stomach disturbances to date, up to fifteen years. The few that required operative measures later were in much better condition for it than at the time of the perforation.

Ascarid Abscess in the Liver.—The multipara recovered after the abscess had been cleared out. Besides the long ascarid, colon bacilli and pneumococci were found in the pus. The ascaridiasis dated from childhood, but there was no history of gallstones.

Nail and Wire Extension in Fractures.—Koch concludes from his experimental research that Klapp's wire method represents progress in the extension treatment of fractures. The small diameter of the wire tends to protect against infection, but the method is less adapted to spongiosa bone.

Monatsschrift für Geb. und Gynäkologie, Berlin

69: 139-276 (May) 1925

*Constitution of Eclampsia Patients. Bublitschenko.—p. 139.
*Depth of Respiration in Preeclamptic State. Klaften.—p. 164.
Syphilis and Pregnancy. D. A. Matusovszky.—p. 173.
*Influence of Forceps on Infant Mortality. G. Rittershaus.—p. 182.
Invagination of the Ovum. L. Weill.—p. 190.
*Actinomycotic Parametritis. P. Schugt.—p. 192.
*Tumor Material in the Tube from Uterine Cavity. E. Vogt.—p. 202.
*Etiology and Prophylaxis of Eclampsia. A. Hochenbichler.—p. 206.
*Tuft of Hair on Female Adam's Apple. J. S. Galant.—p. 219.
History of Gynecology. A. Martin.—p. 224.

Constitutional Peculiarities in Eclampsia Patients.—Bublitschenko's investigations in 226 eclampsia patients and 252 healthy women indicate that a relatively late beginning of menstruation and a disposition to atypical menstruation are characteristically common in eclampsia.

Increased Depth of Respiration in Preeclamptic State.—Klaften states that the amplitude of the breath exceeds that in normal conditions. Noticeable increase in amplitude within a few days or hours, as well as average absolute increase, afford a sure sign of increasing intoxication and a tendency to eclamptic spasms.

Influence of Forceps on Infant Mortality.—Rittershaus found that 8.32 per cent. of 17,942 deliveries were forceps deliveries, with a total infant mortality of 3.78 per cent. He confirms Winkel's indication for the infant (heart sounds below 100 in a single pause between pains) and considers extension of the second stage of labor beyond three hours, the necessary conditions being present, as a relative indication for typical forceps application in the interest of both mother and child. The work issues from the Freiburg women's clinic.

Actinomycotic Parametritis.—Schugt describes a localization of actinomycosis in the right epigastrium in a woman, aged 29. Necropsy confirmed that roentgen irradiations may exert a favorable action on actinomycotic affections within the body. The parametrium had been involved, but had healed under the roentgen rays.

Passage of Tumor Material from Uterine Cavity to the Tubes.—Vogt describes Sampson's theory and cites three cases in proof.

Etiology and Prophylaxis of Eclampsia.—Hochenbichler found similar results after irradiation with the quartz lamp and after bloodletting. It would therefore seem advisable to substitute the former for the latter, and for increased effect, in especially grave cases, to apply both.

Tuft of Hair on Female Adam's Apple.—Galant regards this case as a rare anomaly and at least as important a stigma of degeneration (virilism) in woman as a masculine border line of the hair on the pubis.

Monatsschrift für Kinderheilkunde, Leipzig

30: 97-192 (May) 1925

*Modification of Child Chest by Gymnastics. H. Götz.—p. 97.
*Suppuration in Urogenital Apparatus in Infants. Schönfeld.—p. 112.
*Familial Mongolism. Chotzen.—p. 120.
*Bone Changes in Intestinal Infantilism. F. Lehmann.—p. 124.
*Sinus Thrombosis in Influenza. A. Hottinger.—p. 131.
Changes in Growth of Moscow Children. W. Stefko.—p. 149.

Shape of the Thorax in Children.—Götz lauds the advantages of the Hofbauer method of measuring the chest by the "reduced sagittal diameter" for comparing different children and the same child at different times. She gives the diagrams of a number of children, showing that a flat chest with slanting superior aperture often displays excellent function, even better than the high "infant" shape. The children with pulmonary tuberculosis generally have a well rounded chest. Systematic gymnastic exercises do not alter the position of the chest, although they soon improve the function.

Suppurating Urinary Infections in Infants.—Schönfeld describes cases which testify to a surprising lack of involvement of the upper urinary passages in cystitis, as also cases of unmistakable primary affections of the kidney with descending infection. Colon bacilli often could be cultivated from the blood before they were found in the urine. He is unable to explain how the urine can be permanently sterile with severe pyuria, as he has sometimes observed. In one case hematuria was the first symptom; it then subsided and pyuria developed and persisted for a long time without impairment of the general health or fever.

Familial Mongolian Idiocy.—The third child of two sisters presented mongolism. There was no history of syphilis or alcoholism, but endocrine and psychic disturbances were common in both families.

Bone Changes with Intestinal Infantilism.—The three children with the Heubner-Herter picture of intestinal infantilism developed rickets late, long preceded by osteoporosis. The tendency to rickets had probably existed from the first, but had been masked by the undernourishment and arrest of the growth from the metabolic derangement.

Sinus Thrombosis as Complication of Influenza.—Hottinger states that the epidemic of influenza at the Basel children's clinic in 1924 had a mortality of 11.2 per cent., almost the same as the great 1918 epidemic, and complications were numerous and grave. Thrombosis of the longitudinal sinus developed in four of the infants, aged about 2. It was of otogenous origin in two of the children.

Münchener medizinische Wochenschrift, Munich

72: 753-792 (May 8) 1925

*Surgery of Angina Pectoris. A. Schittenhelm and M. Kappis.—p. 753.
*Anthracochalicotic Lymph Nodes and Bronchitis Deformans. Schmorl.—p. 757.
*Treatment of Bronchitis with Ether. E. Riess.—p. 758.
*Deficiency of Sulphur. Grumme.—p. 761.
*Serodiagnosis of Otosclerosis. H. Leicher.—p. 762.
Blood Findings in Induced Malaria. W. Skalweit.—p. 762.
Differential Stains for Diphtheria Bacilli. Sonnenschein.—p. 765.
Vaccine Treatment of Gonorrhea in the Female. E. Schwab.—p. 767.
*Gonococcus Arthritis in Infant. K. Wahlberg.—p. 770.
*Habitual Oblique Position of Shoulder. O. Muck.—p. 771.
*Parasympathetic Diabetes in Man. F. Bertram.—p. 772.
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Colloid Metals. O. Lange.—p. 776.
Etiology and Treatment of Lockjaw. T. Port.—p. 777.
*Proposed Legislation Against Alcohol. F. Riss.—p. 778.

Surgery of Angina Pectoris.—Schittenhelm and Kappis review the results of five different surgical procedures in angina pectoris. All of them seem capable of abolishing the pains. After failure of all internal measures either the extirpation of the superior cervical ganglion or resection of the depressor nerve is indicated. Paravertebral injections might be tried first.

Anthracochalicotic Lymph Nodes and Bronchitis Deformans.—Schmorl draws attention to the changes in the bronchi due to contraction of anthracotic or chalicotic lymph nodes. Formation of diverticula and other anomalies develop, which may represent precancer changes.

Treatment of Bronchitis with Intramuscular Injections of Ether.—Riess made intramuscular injections of 0.5 c.c. of ether in 0.5 c.c. of olive oil, with addition of a local anesthetic, in 187 cases of postoperative bronchitis, including that following inhalation of ether. The results were excel-

lent. He recommends one such injection daily in every case of acute or chronic bronchitis without emphysema.

Deficiency of Sulphur.—Grumme believes that an insufficient intake of sulphur predisposes to cancer.

Serodiagnosis of Otosclerosis.—Leicher found similar serologic changes in both his otosclerosis and cancer patients. The points investigated were: lowered blood calcium and cholesterol; low sugar tolerance; phlorhizin glycosuria; relative increase in globulins; Kahn's reaction, and the antitryptic titer of the serum.

Gonococcus Arthritis in Infant.—Wahlberg observed two cases of gonococcus arthritis in nurslings who had a gonorrheal affection of the nose.

Habitual Oblique Position of Shoulder from Obstruction of Blood Outlet from Brain.—Muck's patient after a ligation of the right jugular vein developed a habit of lifting the right shoulder high. The face became cyanotic when the arm was forcibly drawn backward and down. He observed another similar case, and investigated the faulty posture among school children.

Parasympathetic Diabetes in Man.—Bertram reports the history of a man whose attacks of bronchial asthma subsided for ten months after bilateral sympathectomy; then they returned as severe as before. Three months after the second operation the patient vomited all the food and presented glycosuria. The alimentary hyperglycemia was pronounced. Injection of atropin lowered the curve a little. The author believes that the disturbance of sugar metabolism was due to the predominance of the parasympathetic. The vomiting seemed to be of hysterical nature.

Homeopathy.—Bier believes that some of the homeopathic remedies are efficient. He had good results in thirty-four cases of furunculosis with doses of $\frac{1}{10.000}$ mg. of sulphur iodid, taken half an hour before meals three times every day. The patients recovered within a month. He had fair results in acute furunculosis with three doses of 0.1 mg. daily. He can prevent attacks of coryza in himself by taking a little water in which tincture of iodin or Lugol's solution has been dissolved (1 drop in a glass of water). Heat has a good influence on fresh burns. Injections of ether help in bronchitis. He emphasizes that he does not intend to discard the usual "allopathic" remedies, and even states his belief in the future success of chemotherapy of sepsis. He believes, however, that an agreement with sensible homeopaths may be obtained which will free them from the quacks that are following them. Hahnemann, with all his one-sided shortcomings, was an important personality. His acceptance of vaccination is to his credit. But after all, he says, the most important discovery in the history of medicine was that of Hippocrates in the aphorism, "Nature cures the disease."

Proposed Legislation Against Alcohol.—The pending new German penal code provides for prison sentences up to two years for persons who commit crimes while completely drunk. Saloonkeepers who serve drinks to young or drunken persons or to those who have been enjoined from visiting saloons (for a period of three to twelve months), are also punishable. The court has the power to force a criminal drunkard to submit to a course of treatment.

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Routes of Infection in Tuberculosis. H. Beitzke.—p. 257.
Prognosis of the Lung Cavity. H. Grau.—p. 265.
Deep Roentgentherapy in Pulmonary Tuberculosis. Schulte-Tigges.—p. 267.
Laryngeal Tuberculosis Treated by Natural and Artificial Sunlight. F. Kellner.—p. 271.
*Immunization Against Tuberculosis. Arima et al.—p. 275.
Diagnosis of Pneumoconiosis. V. Hinze.—p. 292.
Effect of Tuberculin Injections on Enuresis. P. Müller.—p. 294.
Reply. F. v. Kovàts.—p. 297.
Recent Research on Treatment and Diet in Tuberculosis. Schröder.—p. 299.

Immunization of Guinea-Pigs Against Tuberculosis.—Arima, Aoyama and Ohnawa say that to induce artificial immunity to tuberculosis without causing infection or generalized tuberculosis, the bacilli must not be changed immunologically. Their saponin and lipase method preserves the immunizing value of the bacilli. They describe in part their experiments on guinea-pigs; in all, 3,000 guinea-pigs were used. The animals treated with their tubercle bacilli preparation were all immune to later infection, the immunity differing only in degree. They add that artificial immunity to tuberculosis was also induced in rabbits by this method. [Their earlier report on the nonvirulence of saponin cultures of human tubercle bacilli was summarized in THE JOURNAL, Feb. 7, 1925, p. 479.]

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*Diabetes in Infants. J. C. Schippers.—p. 2206.
*Stimuli for the Cells. H. Verploegh.—p. 2216.
Roentgen-Ray Treatment of Laryngeal Tuberculosis. C. J. A. van Iterson and D. J. Steenhuis.—p. 2224.
The Myodiopter. II. G. J. Schoute.—p. 2230.
*Scarlet Fever Toxin and Antitoxin. H. Aldershoff.—p. 2237.
*Haematomyelia Tubularis. G. C. Bolten.—p. 2241.

Diabetes in an Infant.—The sudden onset with fever and signs of acute nephritis in a previously healthy infant of 4 months suggest that the acute infection had injured the islands of Langerhans. The resulting diabetes was kept under control with insulin, the doses modified to fit the waves of tolerance and intolerance. With a weight of 4,520 gm. the polarimeter showed 9.1 per cent. glucose in the urine. Schippers began tentatively with 5 units of insulin, and he did not succeed in banishing the sugar from the urine completely. By the age of 19 months the child had four teeth and presented the aspect of health. The aim in feeding was to approximate 1.5 gm. protein; 3.75 gm. fat, and 6 gm. carbohydrates per kilogram—about 64 calories per kilogram. The details are given and the thriving of the child is emphasized. At the age of 2 years and one month, an intercurrent pharyngitis and pneumonia aggravated the condition and the child died in coma.

Specific and Nonspecific Stimuli for the Cells.—Verploegh insists that tuberculin and similar substances should be used only when the defensive forces are active. Our aim should be to stimulate the sound cells to extra work while stimulating only weakly the cells of the disease foci (extracts of connective tissue, muscle, bone and gland extracts, blood, extracts of cultures of the cocci that accompany the tubercle bacilli, hormones, etc.). His research seems to suggest that the phase of the splitting determines the character of the stimulus induced. It acts more strongly on the sound cells than on the focus when it is in that phase in which the protein molecule loses its "protein" property. This phase is revealed by the biuret reaction. He declares that we must transform our vaccine treatment of the anemic and weakly to take advantage of the abiuret phase. The strongest and most specific stimulus is afforded by the own blood. Addition of tissue extract and a vaccine to tuberculin enhances its effect materially in patients with good resisting powers. With weak resisting powers, the patient is unable to split the protein molecule into a harmless product. The only way we can help him is by giving the protein molecules in the abiuret form. In any event, the least we can do is to refrain from treating such patients with cell stimuli which introduce into the blood an unsplittable protein molecule.

Scarlet Fever Toxin and Antitoxin.—Aldershoff states that he is now ready to supply antitoxin for therapeutic use. He obtains it from horses treated with the Dick toxin and with toxin of local origin. The horse serum not only gives a good blanching reaction but reduced the temperature promptly in two children with scarlet fever, injected subcutaneously with 40 or 22 c.c.

Symmetrical Hemorrhage on Both Sides of the Spinal Cord.—The young man hit his head and chest against a tree in jumping from a moving street car. There was no unconsciousness, but flaccid paralysis developed at once, indicating "haematomyelia tubularis." Considerable improvement has been observed in the course of several months, but the patient has had cystitis, and his position has to be changed regularly to ward off decubitus.